



# IBM

Field Engineering  
Diagram Manual

## Restricted Distribution

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**2250** Display Unit Model 1

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**2250** Display Unit Model 1

## PREFACE

This manual contains the maintenance-oriented and "recall" diagrams referenced in the 2250-1 Display Unit FE Theory of Operation Manual, Form Y27-2043, and FE Maintenance Manual, Form Y27-2045. Placing the diagrams in this manual allows ready reference during maintenance.

The diagrams are in numerical order, grouped according to type. Diagram numbers are consecutive only within a diagram type.

Related manuals that may be used for reference are:

2250-1 FETOM, Form Y27-2043.

2250-1 FEMM, Form Y27-2045.

2250-1 Installation Manual (FEIM), Form 226-2022.

This diagram manual supersedes the 2250-1 FE Diagram Manual, Form Y27-2044-0. Major changes are the addition of diagrams to cover the graphic design feature and the updating of existing diagrams. A block diagram of the 2250-1, an intensity diagnostic flow chart, and a diagram of the arc-protection circuit have also been added.

If the 2250 is equipped with the graphic design feature (GDF), use the diagrams listed in column 2 below instead of those listed in column 1. Any reference to a diagram listed in column 1 (when concerned with GDF) should be interpreted as a reference to its counterpart in column 2.

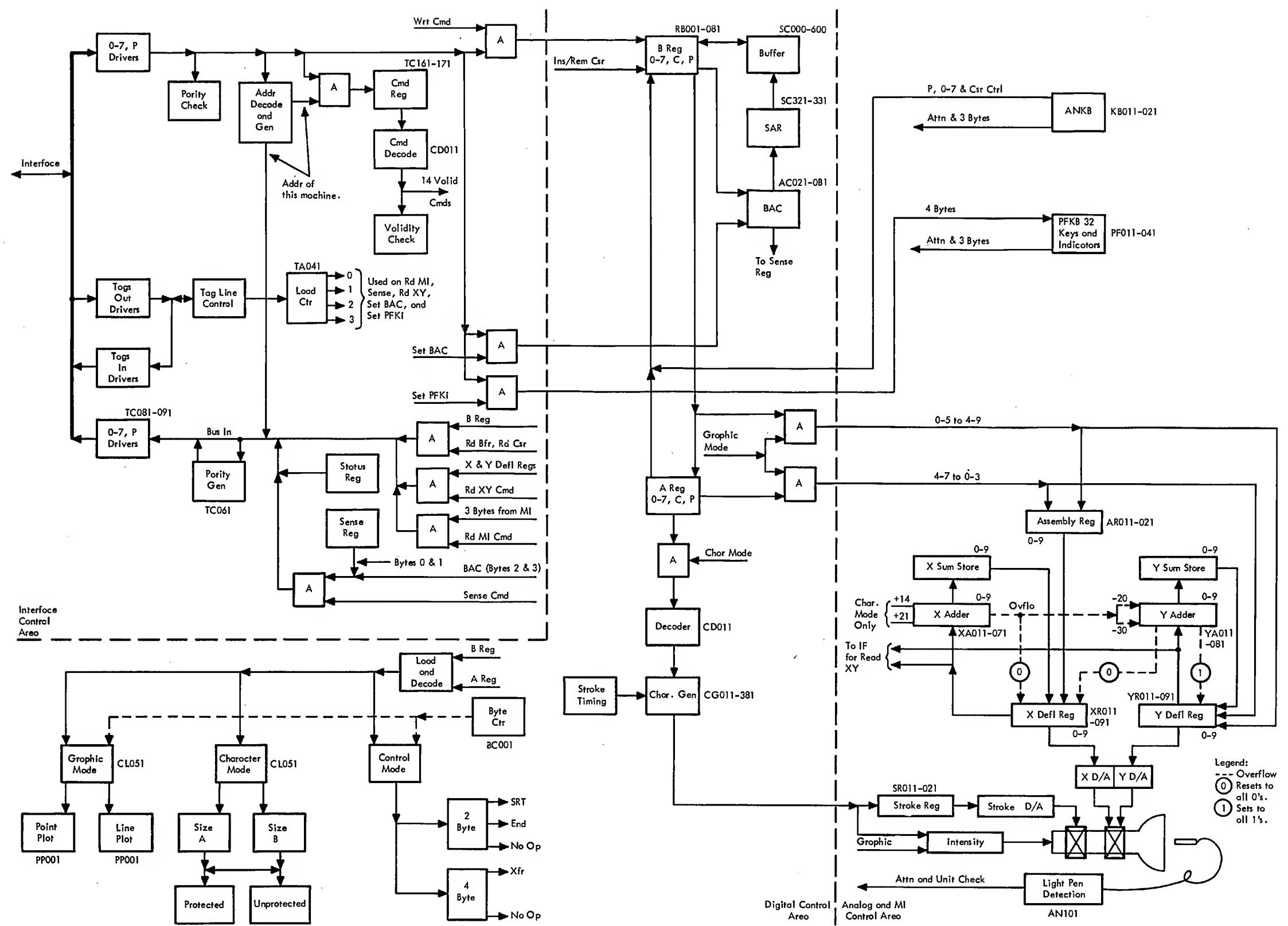
Column 1	Column 2
Basic Diagrams which have GDF counterparts	GDF Counterparts
Figure 5007	Figure 5007GDF
Figure 5023	Figure 5023GDF
Figure 6001	Figure 6001GDF
Figure 6005	Figure 6005GDF
Figure 6007	Figure 6007GDF
Figure 6008	Figure 6008GDF
Figure 6010	Figure 6010GDF
Figure 6013	Figure 6013GDF
Figure 6015	Figure 6015GDF
Figure 6037	Figure 6037GDF
Figure 9003	Figure 9003GDF
Figure 9022	Figure 9022GDF

This manual has been prepared by the IBM Systems Development Division, Product Publications, Dept. 520, CPO Box 120, Kingston, N. Y. 12401. Address comments concerning the manual to this address.

CONTENTS

2250-1 BLOCK DIAGRAM. . . . .	1000	Buffer Regeneration, MC Search and Proceed G, Flow Chart . . . . .	6010	
<b>UNIT DATA AND CONTROL DIAGRAMS</b>				
Standard Unit, Write Direct Operation (Non Buffered Machine). . . . .	2000	Buffer Regeneration, MC Search and Proceed G, Flow Chart (for GDF Machines) . . . . .	6010GDF	
Standard Unit with Character Generator Operation . . . . .	2001	Buffer Regeneration, Proceed B, Cursor Adjustment Process, Flow Chart . . . . .	6011	
Program Function Keyboard, Data Entry Operation . . . . .	2002	Buffer Regeneration, Proceed C and Proceed F, Character Mode, Flow Chart . . . . .	6012	
Program Function Keyboard, Indicator Control Operation . . . . .	2003	Buffer Regeneration, Proceed C and Proceed E, Graphic, Transfer and No Op Modes, Flow Chart . . . . .	6013	
Standard Unit with Alphanumeric Keyboard, Data Entry Operation . . . . .	2004	Buffer Regeneration, Proceed C and Proceed E, Graphic, Transfer and No Op Modes, Flow Chart (for GDF Machines) . . . . .	6013GDF	
Standard Unit with Light Pen, Data Entry Operation . . . . .	2005	Buffer Regeneration, Buffer Cycle, Flow Chart . . . . .	6014	
Write Buffer Operation . . . . .	2006	Buffer Regeneration, Transfer Order Process, Flow Chart . . . . .	6015	
Set BAC Operation . . . . .	2007	Buffer Regeneration, Transfer Order Process, Flow Chart (for GDF Machines) . . . . .	6015GDF	
Display Regeneration Operation . . . . .	2008	Transmission Interface Control, Initial Selection Sequence, Flow Chart (4 Sheets) . . . . .	6016	
Alphanumeric Keyboard, Data Entry into Buffer Storage . . . . .	2009	Transmission Interface Control, Service Cycle Sequence, Flow Chart . . . . .	6017	
Light Pen Character Detect, BAC Control . . . . .	2010	Transmission Interface Control, Ending Sequence, Flow Chart . . . . .	6018	
Light Pen Absolute Graphic Detect, BAC Control . . . . .	2011	Set Buffer Address Command, Flow Chart . . . . .	6019	
Read Buffer Operation . . . . .	2012	Insert-Remove Cursor Command, Flow Chart . . . . .	6020	
Read Sense Operation . . . . .	2013	Set Program Function Keyboard Indicators Command, Flow Chart . . . . .	6021	
Read X-Y Position Registers Operation . . . . .	2014	Write Direct Command, Flow Chart . . . . .	6022	
CRT Beam Deflection and Control, Block Diagram . . . . .	2015	Write Buffer Command, Flow Chart . . . . .	6023	
Yoke Current Distribution, Full X Deflection . . . . .	2016	Read Buffer Command, Flow Chart . . . . .	6024	
Character Deflection and Control, Block Diagram . . . . .	2017	Read Cursor Command, Flow Chart . . . . .	6025	
Character Generator, Block Diagram . . . . .	2018	Read Manual Inputs Command, Flow Chart . . . . .	6026	
<b>SIMPLIFIED LOGIC DIAGRAMS</b>				
Typical Character Generator Operation, Logic Diagram . . . . .	5000	Read X-Y Position Registers Command, Flow Chart . . . . .	6027	
B Register, Functional Diagram . . . . .	5001	Sense Command, Flow Chart . . . . .	6028	
A Register, Functional Diagram . . . . .	5002	Power On Sequence . . . . .	6029	
Status Register, Functional Diagram (2 Sheets) . . . . .	5003	Power Off Sequence . . . . .	6030	
Sense Register, Bytes 1 and 2, Functional Diagram . . . . .	5004	Analog Diagnostic Master Flow Chart . . . . .	6031	
Sense Register, Bytes 3 and 4, Functional Diagram . . . . .	5005	Serious Display Defect Test Flow Charts . . . . .	6032	
Buffer Address Register, Functional Diagram . . . . .	5006	Large Square Test Display Flow Chart . . . . .	6033	
Byte Counter, Functional Diagram . . . . .	5007	Staircase Test Display Flow Chart (2 Sheets) . . . . .	6034	
Byte Counter, Functional Diagram (for GDF Machines) . . . . .	5007GDF	Vector and Point Plot Fans Test Display Flow Chart . . . . .	6035	
Load Counter, Functional Diagram . . . . .	5008	Character Generator Test Flow Chart (2 Sheets) . . . . .	6036	
Buffer Address Counter, Functional Diagram (2 Sheets) . . . . .	5009	Light Pen Test Flow Chart . . . . .	6037	
Command Validation, Functional Diagram (2 Sheets) . . . . .	5010	Light Pen Test Flow Chart (for GDF Machines) . . . . .	6037GDF	
First Timing Period, Functional Diagram . . . . .	5011	De-Skew Test Flow Chart . . . . .	6038	
Second Timing Period, Functional Diagram . . . . .	5012	Character Stroke Control, Flow Chart . . . . .	6039	
Third Timing Period, Functional Diagram . . . . .	5013	Character Sequencer, Flow Chart . . . . .	6040	
Fourth Timing Period, Functional Diagram . . . . .	5014	Absolute Vector Graphics Diagnostic Test Flow Chart . . . . .	6041	
Fifth Timing Period, Functional Diagram . . . . .	5015	Intensity Test Flow Chart . . . . .	6042	
Timing Pulse Generator, Functional Diagram . . . . .	5016	<b>ADDITIONAL INFORMATION</b>		
Stroke Timing and Control . . . . .	5017	Size A Characters, Display Distribution . . . . .	9000	
A/N Keyboard Data Encoding Diagram . . . . .	5018	Size B Characters, Display Distribution . . . . .	9001	
A/N Keyboard Sense and Cursor Data Generation . . . . .	5019	A/N Keyboard, Encoding Chart . . . . .	9002	
A/N Keyboard Code Generation and Transfer. . . . .	5020	Power Control and Distribution Wiring Diagram (3 Sheets) . . . . .	9003	
Program Function Keyboard Data Encode and Entry. . . . .	5021	Power Control and Distribution Wiring Diagram (for GDF Machines) (3 Sheets) . . . . .	9003GDF	
A/N and PF Keyboards Interrupt . . . . .	5022	High Voltage Power Supply Wiring Diagram . . . . .	9004	
Light Pen Deflection . . . . .	5023	Power Distribution . . . . .	9005	
Light Pen Deflection (for GDF Machines) . . . . .	5023GDF	2250 CE Panel . . . . .	9006	
Absolute Vector Graphics Control (2 Sheets) . . . . .	5024	Character Stroke Timing Chart . . . . .	9007	
<b>FLOW CHARTS</b>				
Write Direct Command Process, Simplified Flow Chart . . . . .	6000	Main Deflection, High-Order Decoding and Control, Wiring Diagram . . . . .	9008	
Buffer Regeneration Timing Sequence, Simplified Flow Chart. . . . .	6001	Main Deflection, Low-Order Decoding and Control, Wiring Diagram . . . . .	9009	
Buffer Regeneration Timing Sequence, Simplified Flow Chart (for GDF Machines) . . . . .	6001GDF	Main Deflection, DC Offset Control, Wiring Diagram . . . . .	9010	
SM Search-Write, No Buffer, Flow Chart . . . . .	6002	Main Deflection, Yoke Control Circuits, Wiring Diagram . . . . .	9011	
MC Search-Write, No Buffer, Flow Chart . . . . .	6003	Main Deflection, De-Skew Control Circuits, Wiring Diagram . . . . .	9012	
Mode Sequence - Graphic or Character No Buffer, Flow Chart . . . . .	6004	Main Deflection, Position Isolation and Asynchronous Delay Circuits, Wiring Diagram . . . . .	9013	
Line/Point Sequence, Flow Chart . . . . .	6005	Dynamic Intensity I and Blank-Unblank I Circuits, Wiring Diagram . . . . .	9014	
Line/Point Sequence, Flow Chart (for GDF Machines) . . . . .	6005GDF	Dynamic Intensity Blank-Unblank II Circuits, Wiring Diagrams . . . . .	9015	
Character Sequence, Flow Chart . . . . .	6006			
Deflection Interlock Wait (No LP Detect) Flow Chart . . . . .	6007			
Deflection Interlock Wait (No LP Detect) Flow Chart (for GDF Machines) . . . . .	6007GDF			
Light Pen Detection Process, Flow Chart . . . . .	6008			
Light Pen Detection Process, Flow Chart (for GDF Machines). . . . .	6008GDF			
Buffer Regeneration, Proceed A and Proceed D, SM Search, Flow Chart . . . . .	6009			

Character Deflection, Decode Circuits, Wiring Diagrams . . . . .	9016	Absolute Vector Graphics Deflection Control, Delta Counter	
Character Deflection, Reference Voltage Supply, Wiring Diagram . . . . .	9017	Switching Circuits . . . . .	9020
Character Deflection, Yoke Control and Character Isolation Circuits, Wiring Diagrams . . . . .	9018	Yoke Clamp Circuits . . . . .	9021
Absolute Vector Graphics Deflection Control, Typical Switch and Reference Voltage Circuits . . . . .	9019	Light Pen Amplifier Wiring Diagram . . . . .	9022
		Light Pen Amplifier Wiring Diagram (for GDF Machines) . . . . .	9022GDF
		Display Unit Analog Control Block Diagram (2 Sheets) . . . . .	9023
		Arc Protection Circuit and Component Location. . . . .	9024



• Figure 1000. 2250-1 Block Diagram

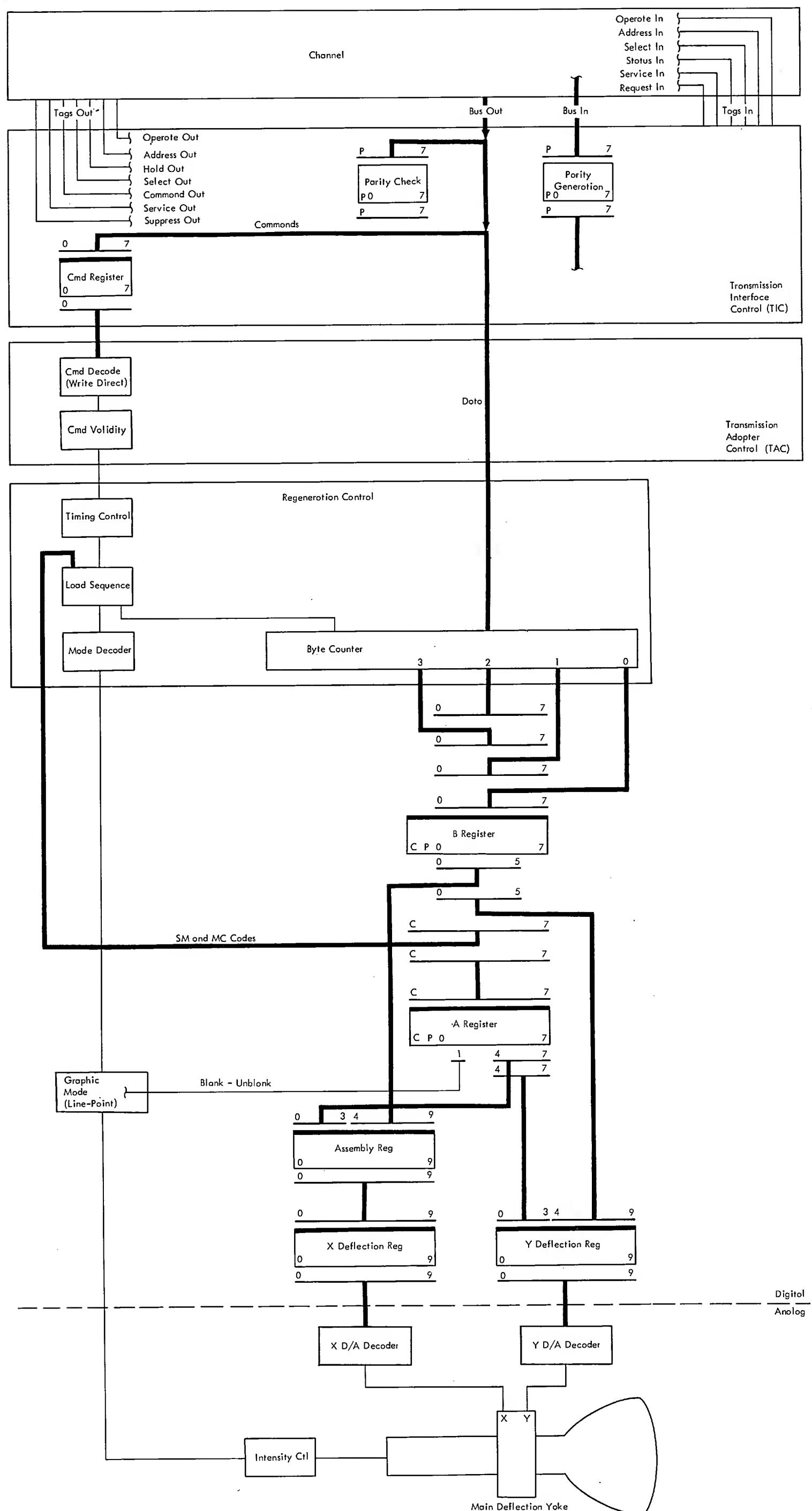


Figure 2000. Standard Unit, Write Direct Operation (Non Buffered Machine)

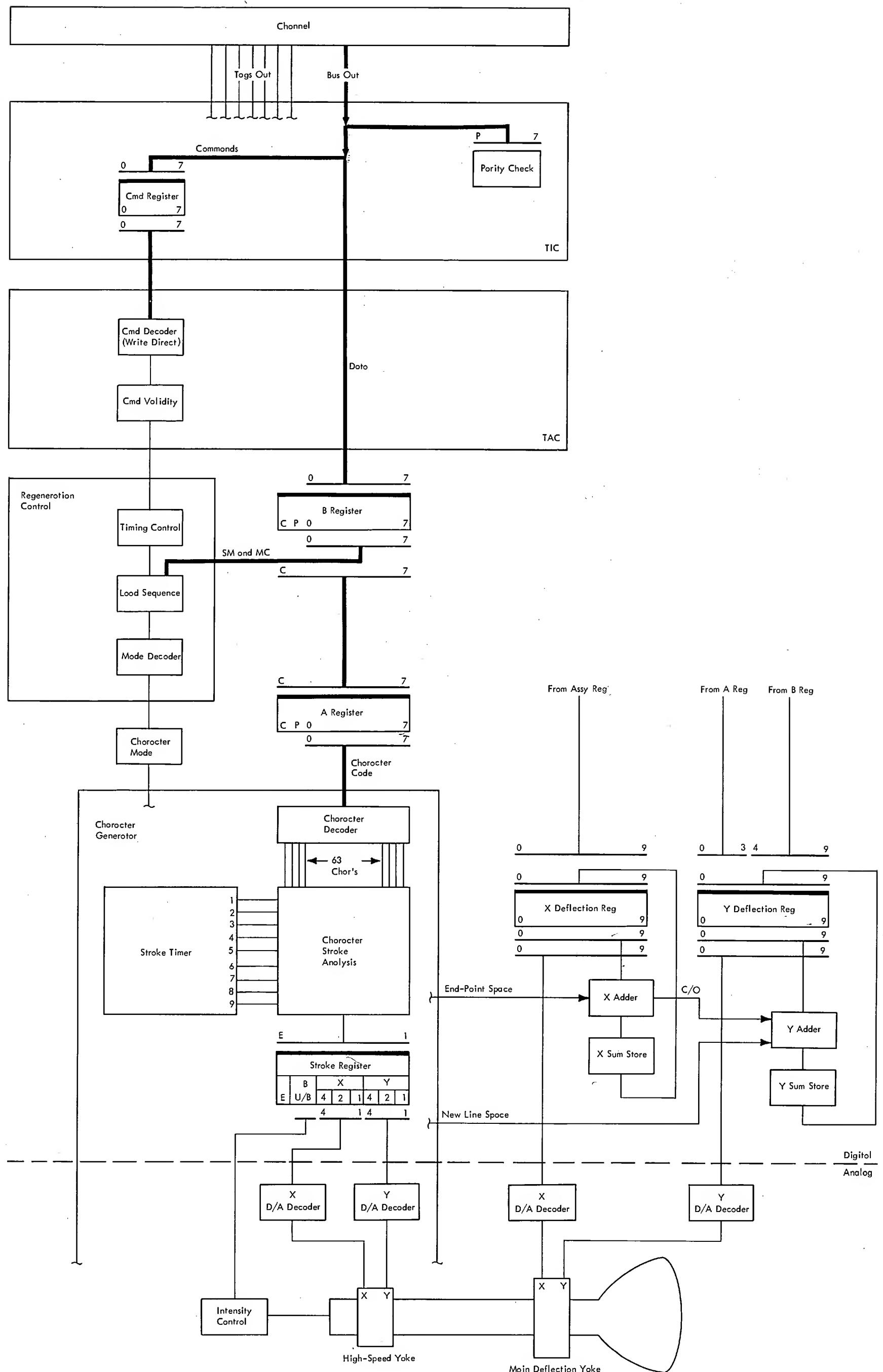


Figure 2001. Standard Unit with Character Generator Operation

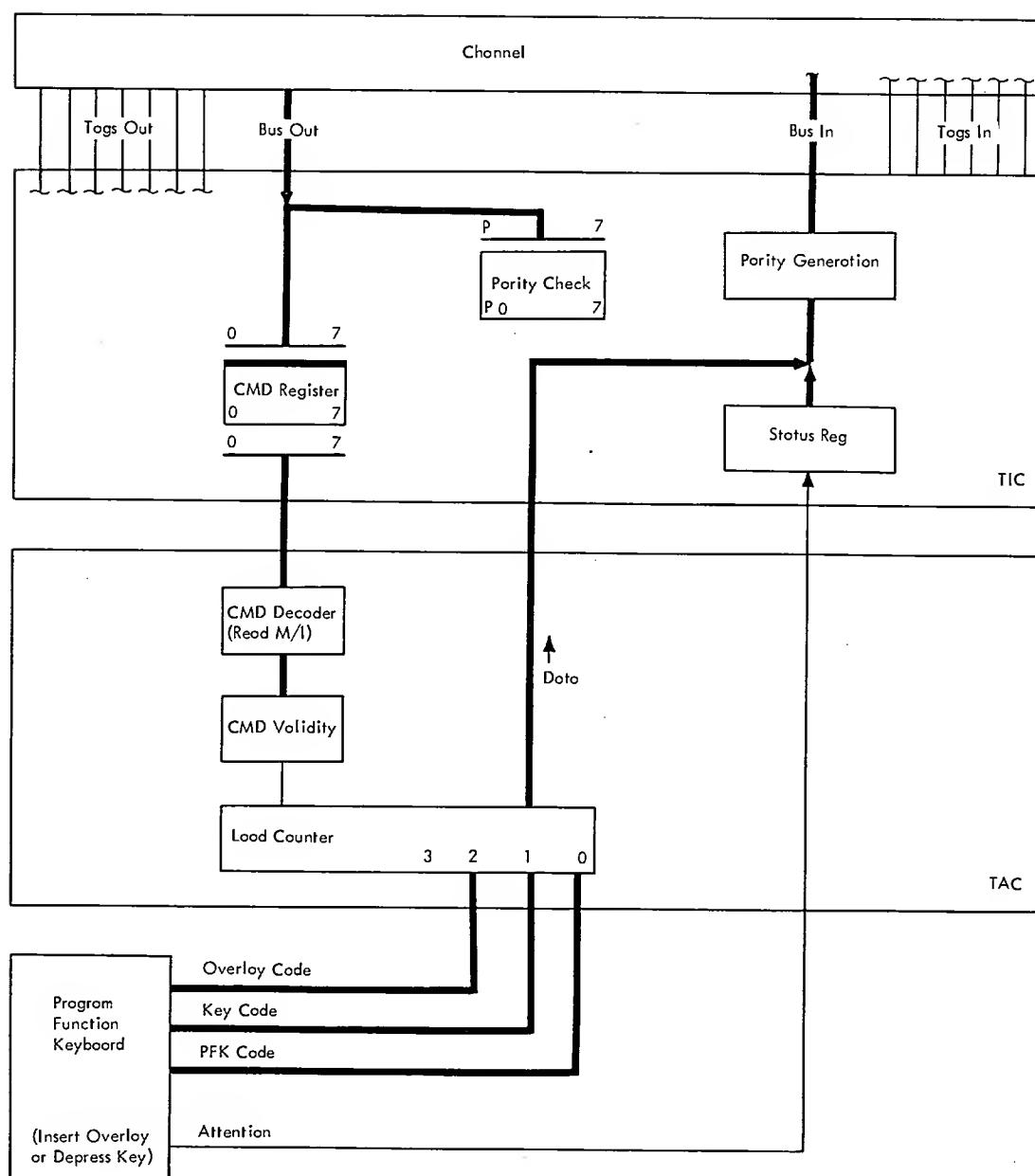


Figure 2002. Program Function Keyboard, Data Entry Operation

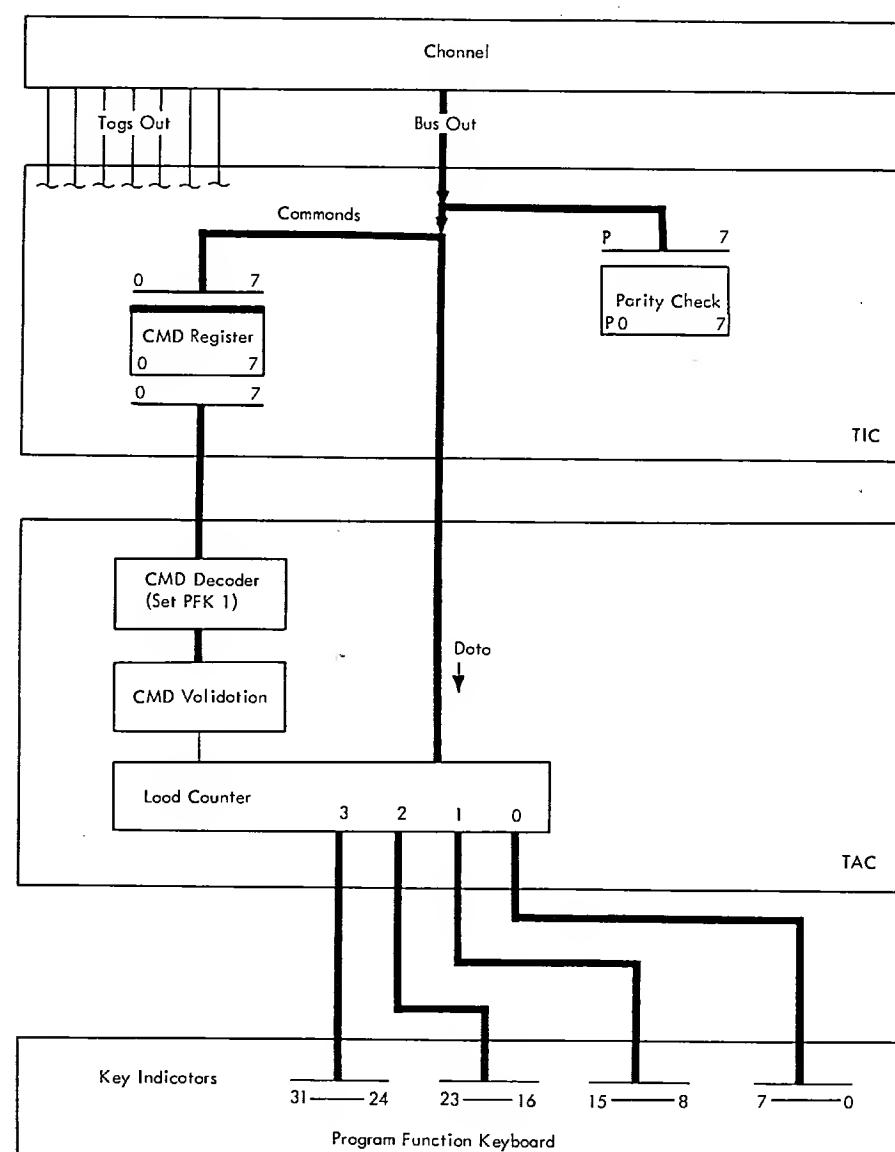


Figure 2003. Program Function Keyboard, Indicator Control Operation

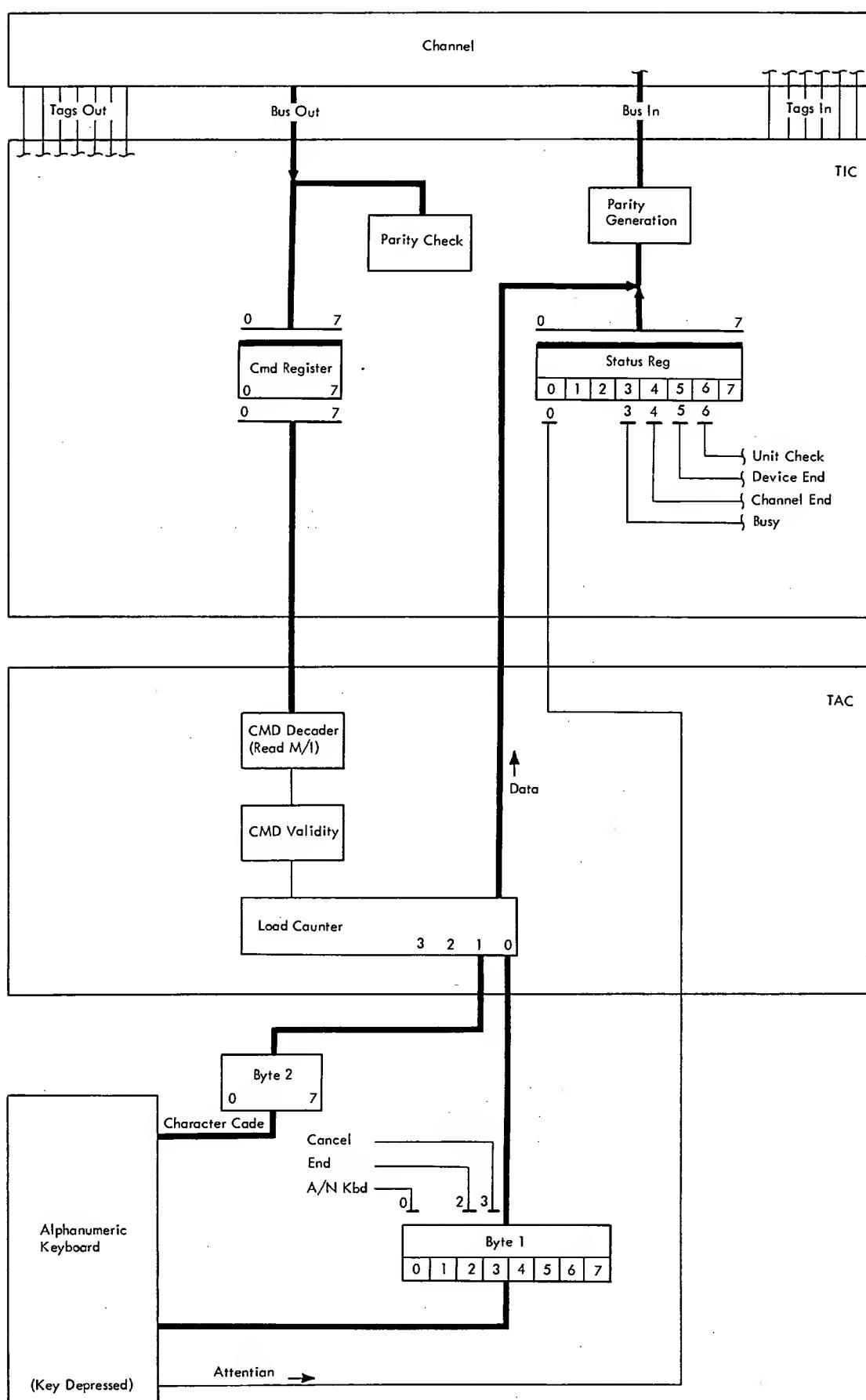


Figure 2004. Standard Unit with Alphanumeric Keyboard, Data Entry Operation

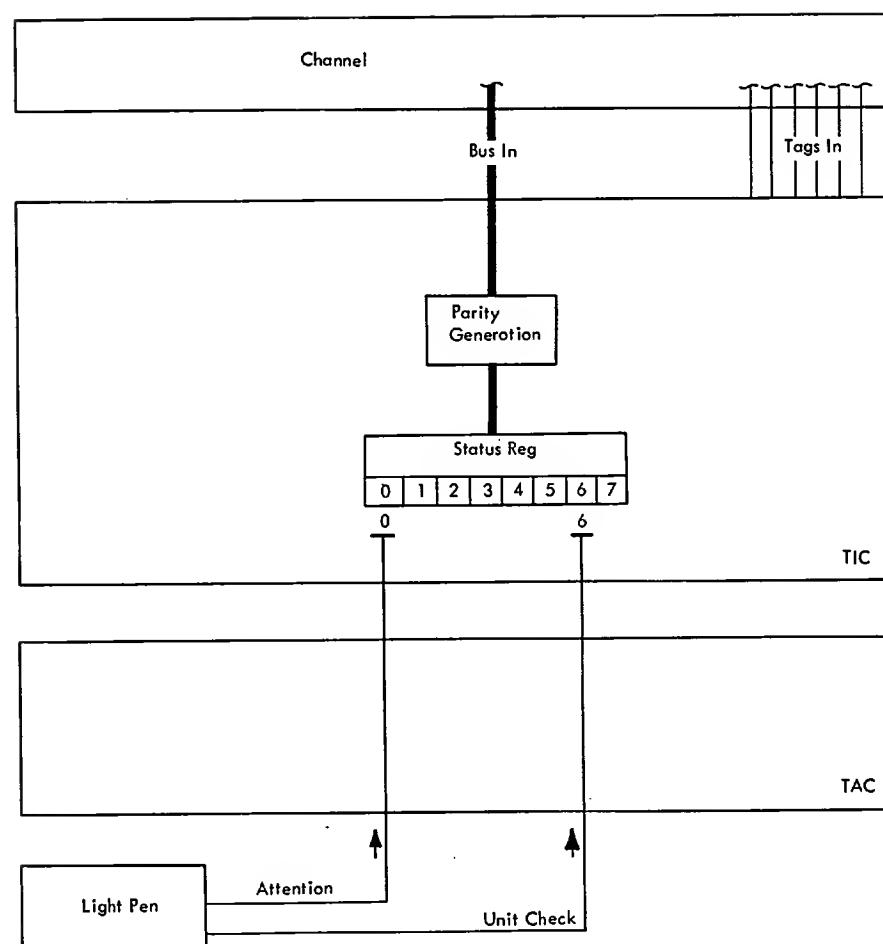


Figure 2005. Standard Unit with Light Pen, Data Entry Operation

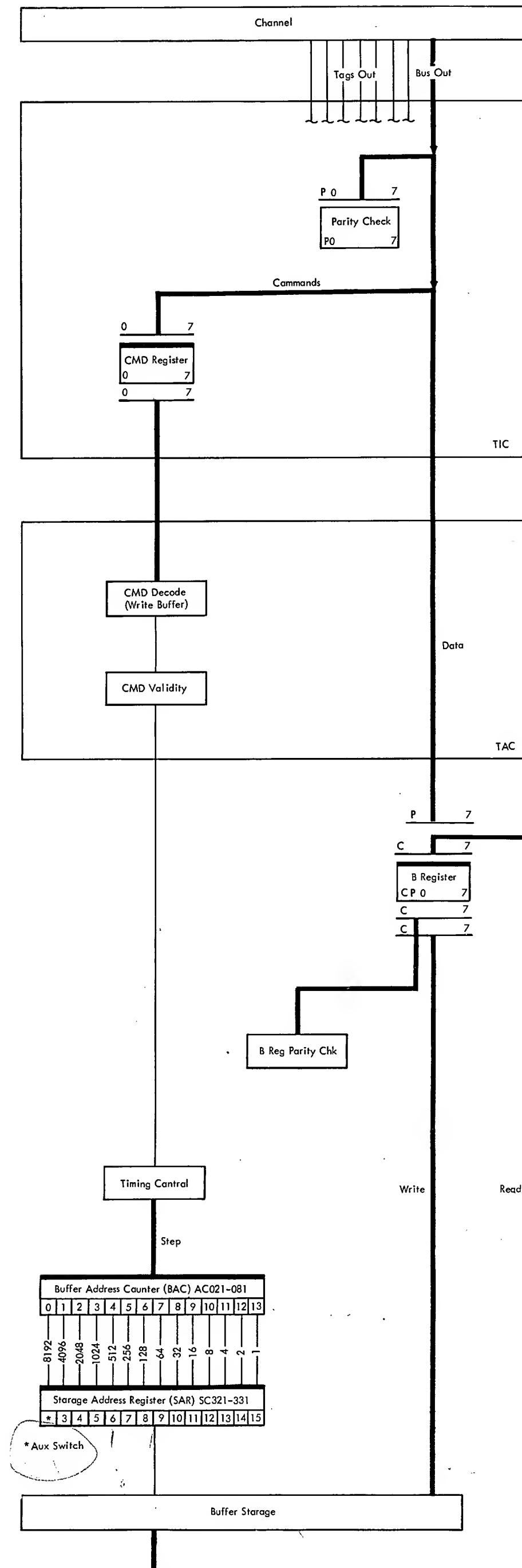


Figure 2006. Write Buffer Operation

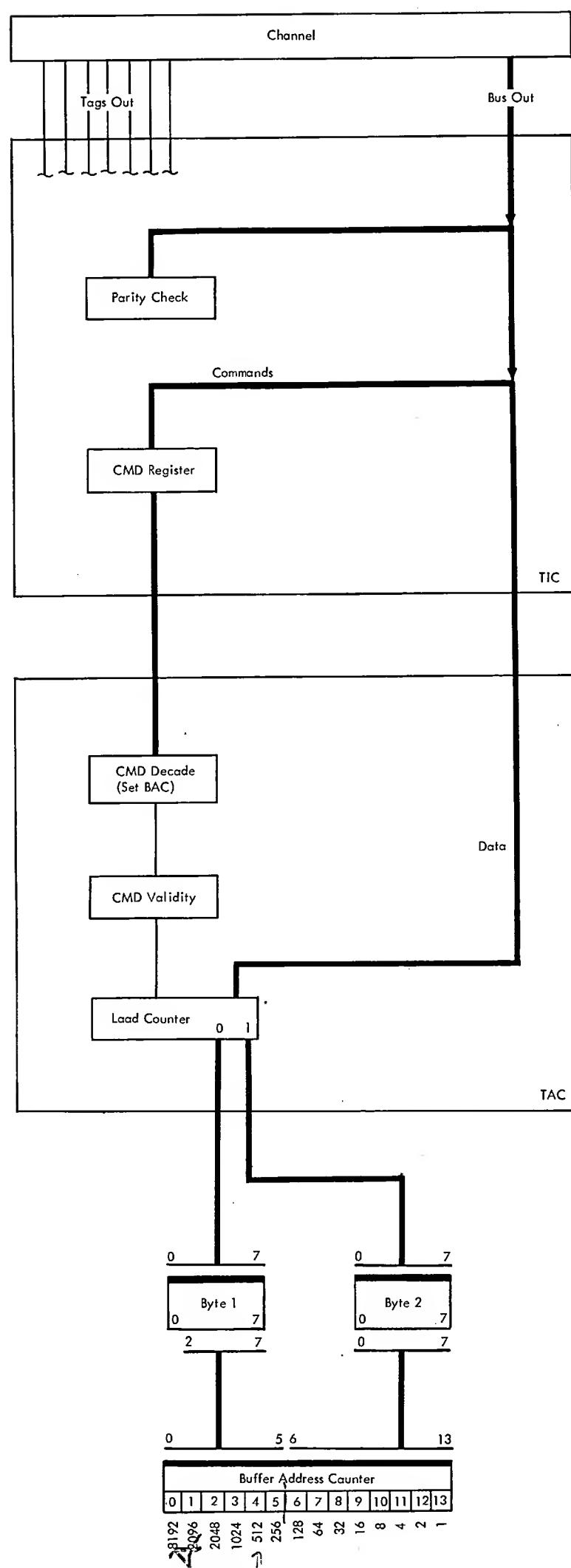
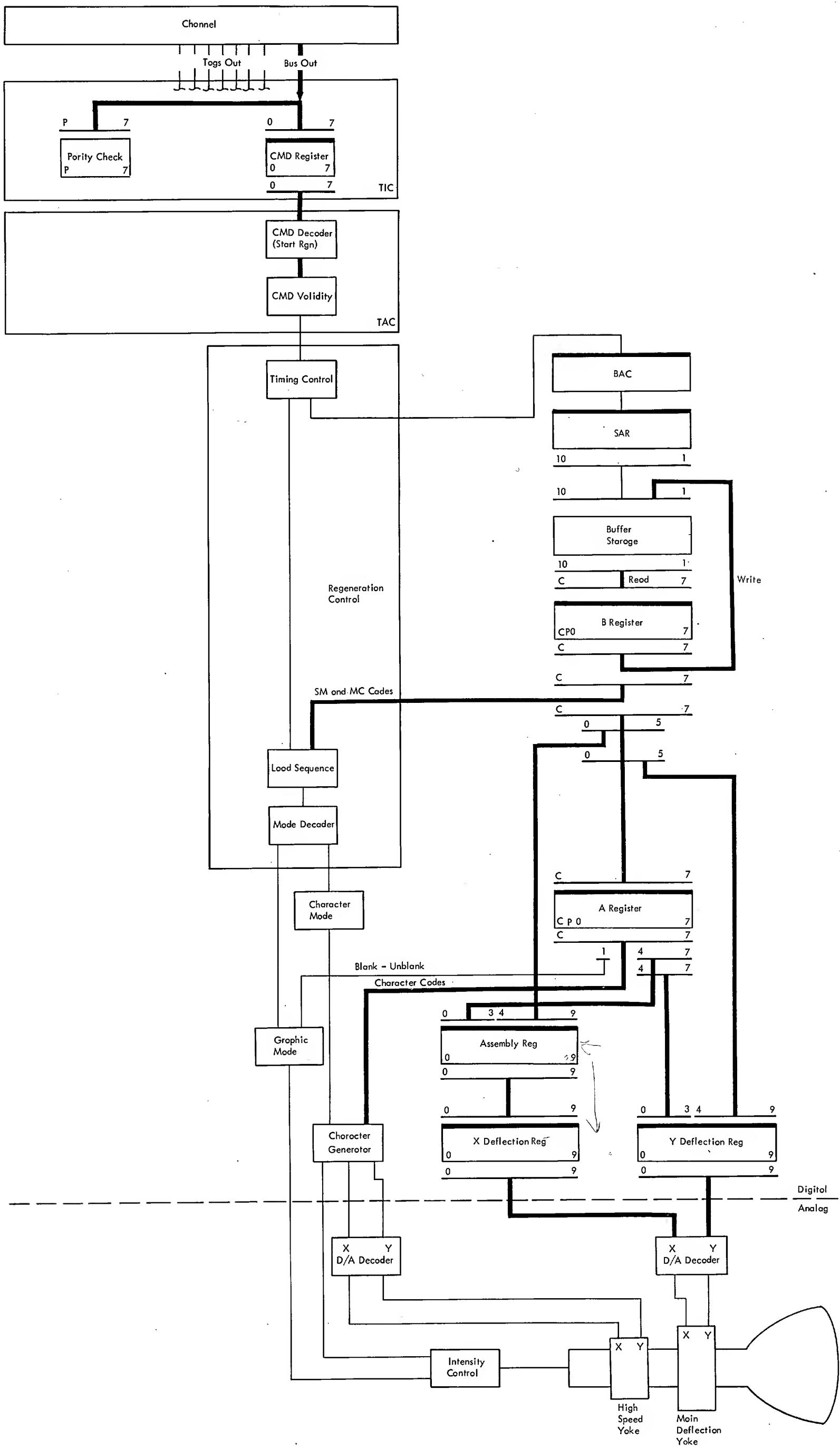
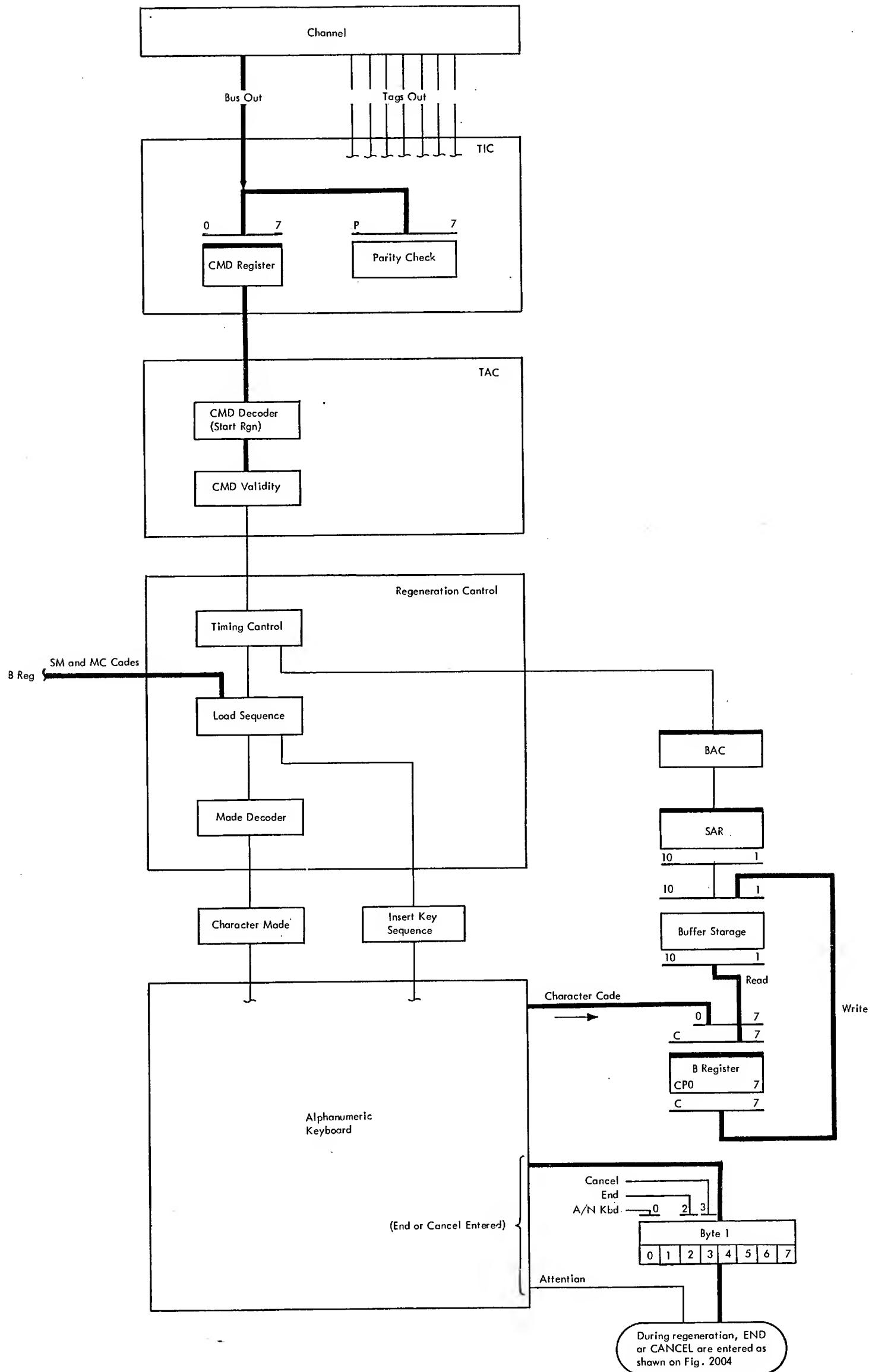


Figure 2007. Set BAC Operation



•Figure 2008. Display Regeneration Operation



•Figure 2009. Alphanumeric Keyboard, Data Entry into Buffer Storage

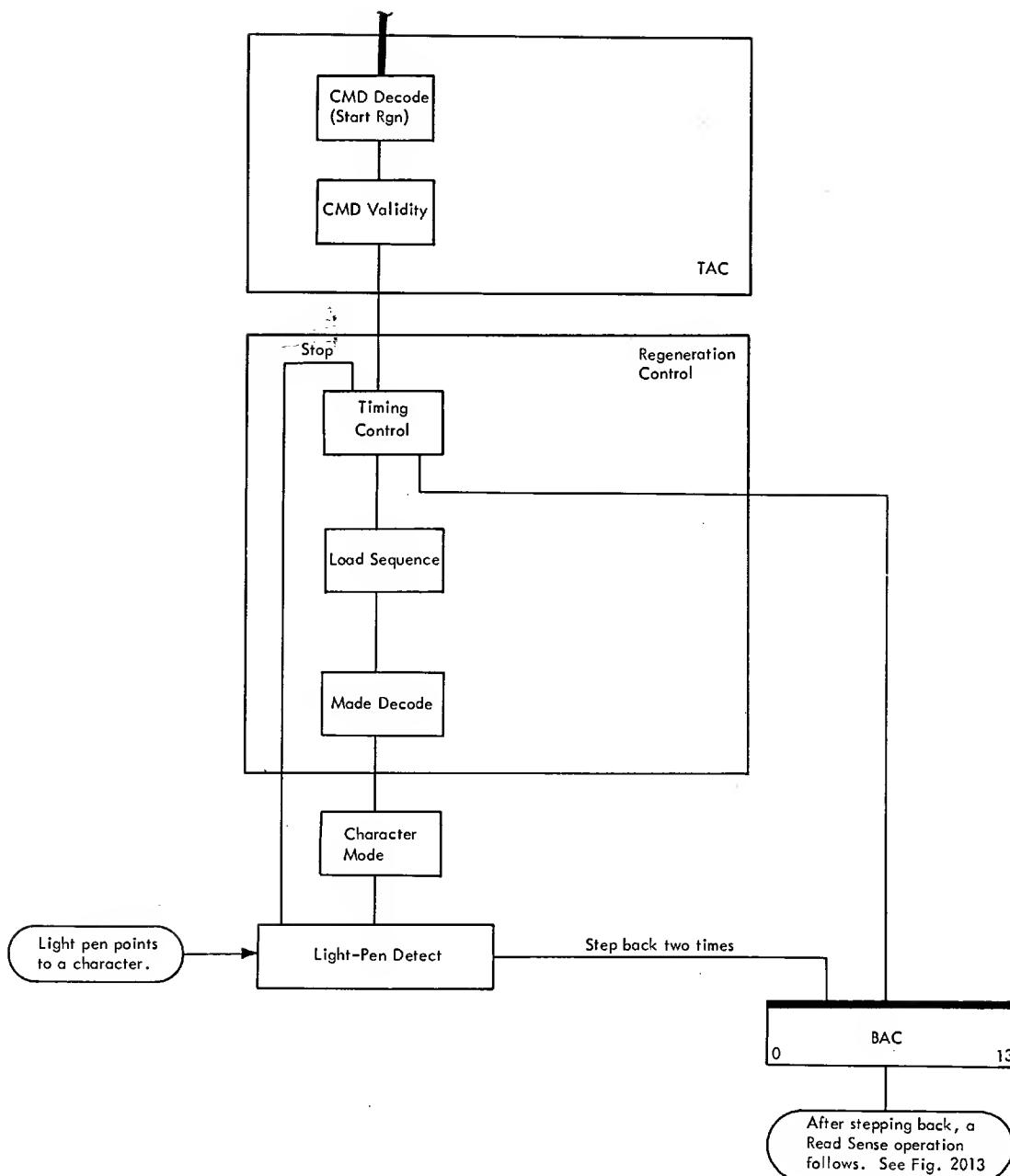
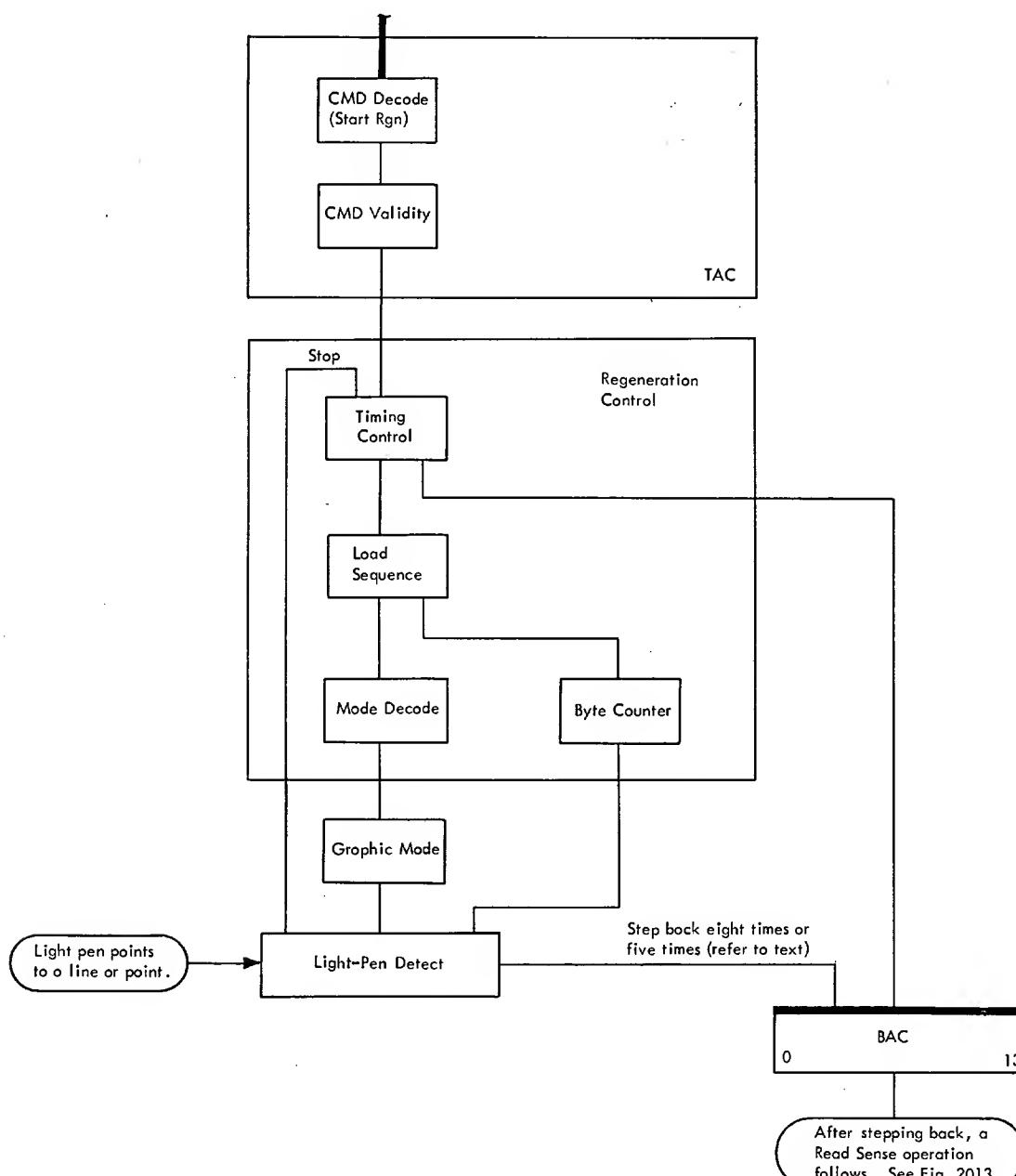
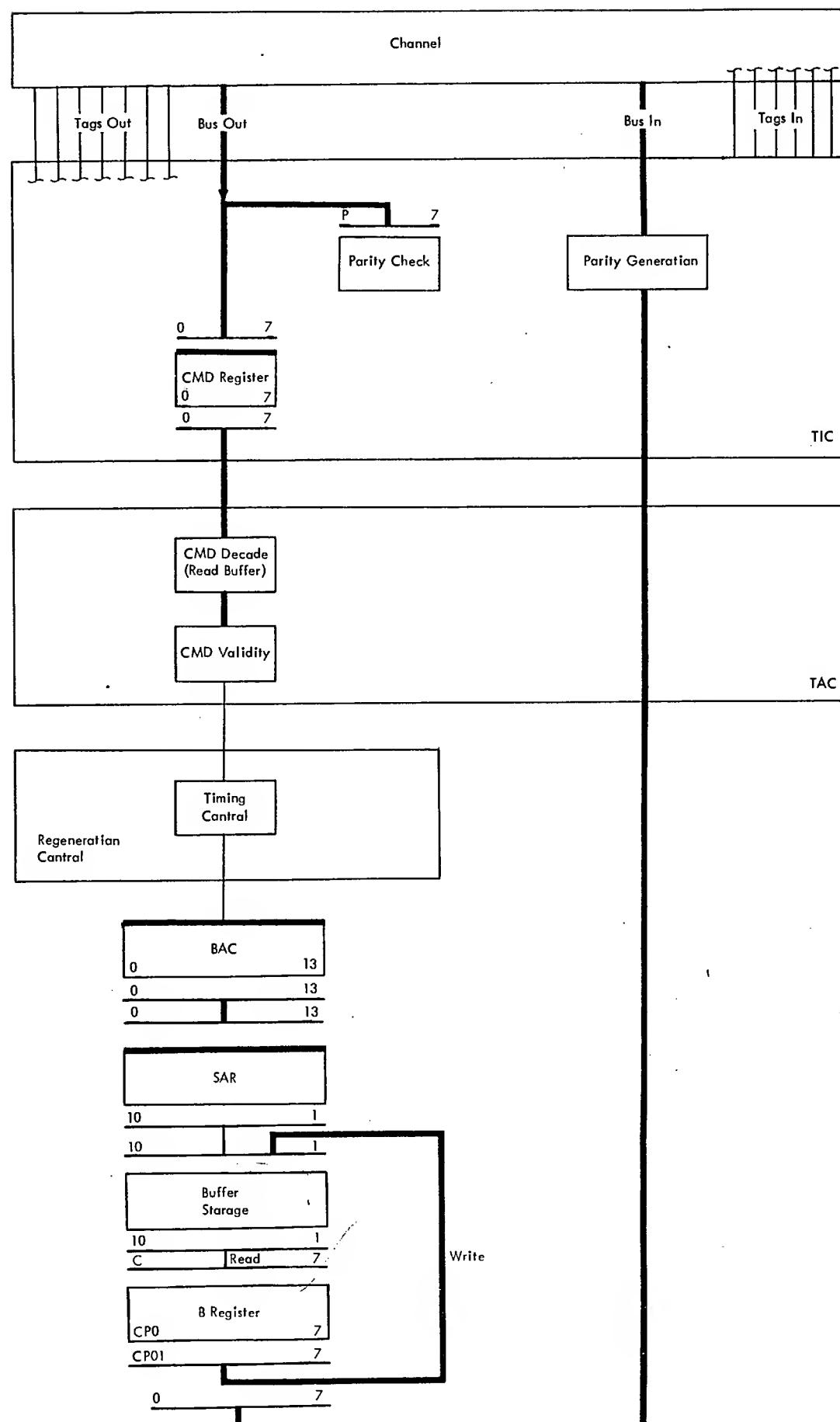


Figure 2010. Light Pen Character Detect, BAC Control



•Figure 2011. Light Pen (Absolute) Graphic Detect, BAC Control



•Figure 2012. Read Buffer Operation

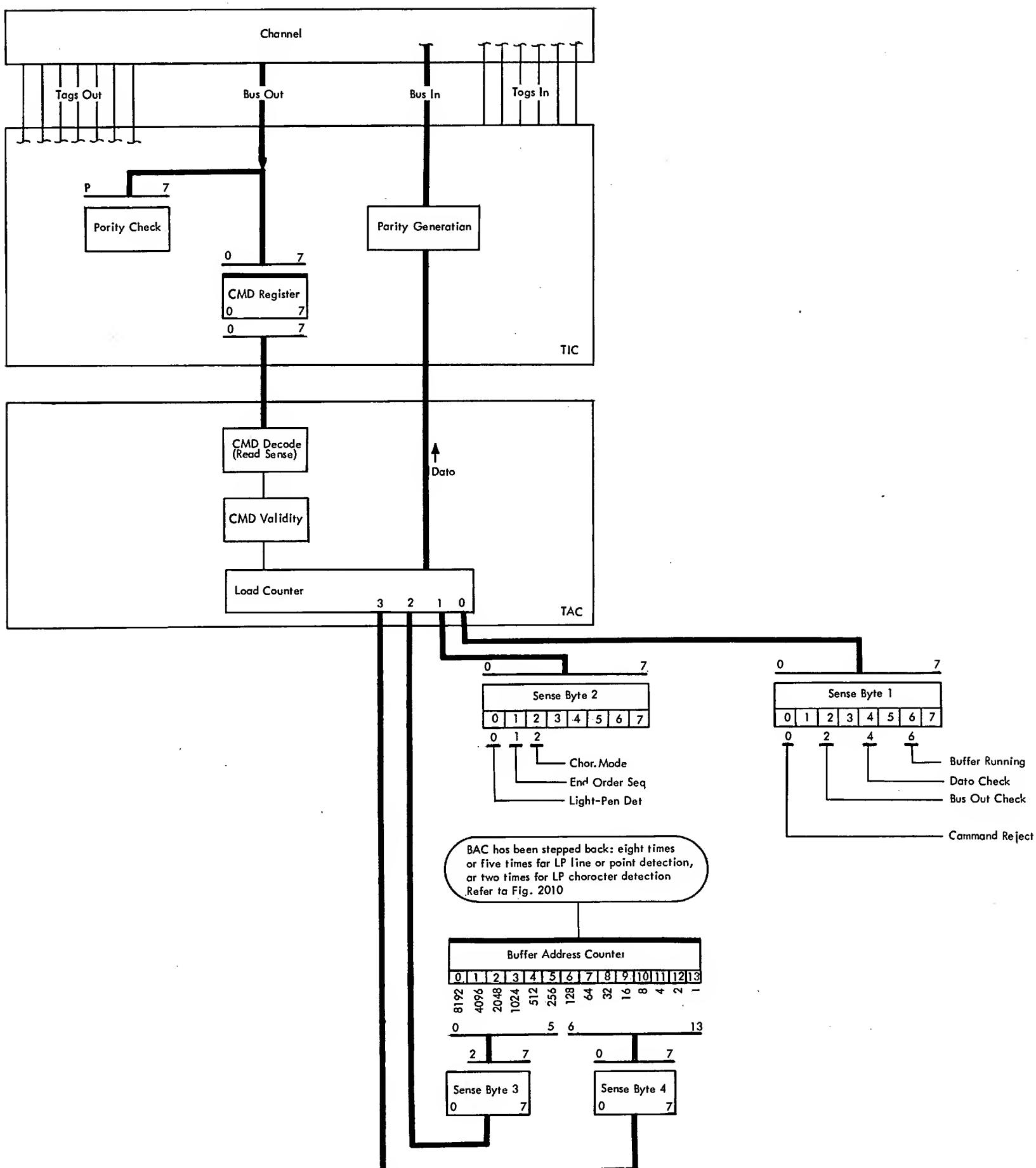


Figure 2013. Read Sense Operation

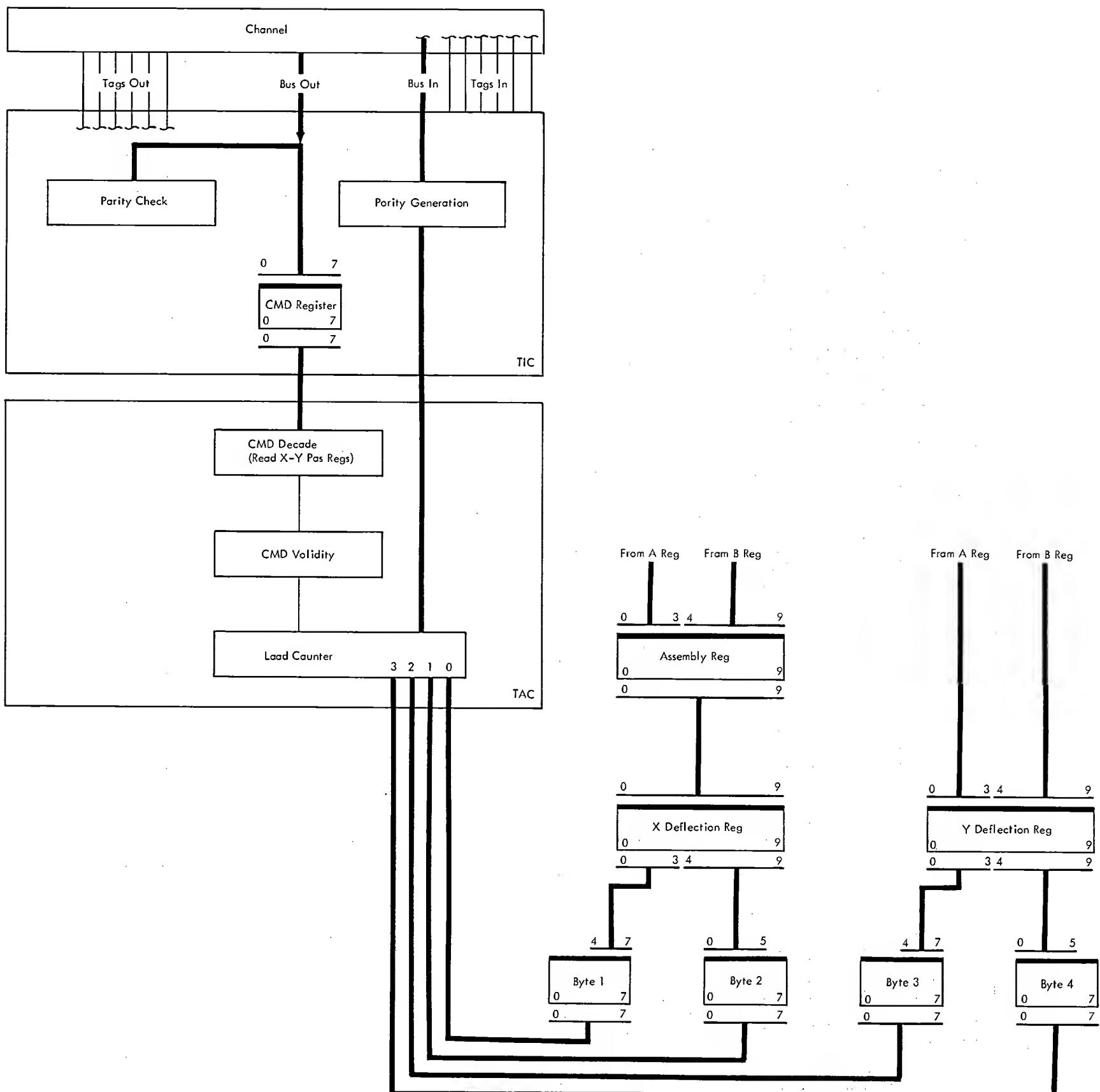


Figure 2014. Read X-Y Position Registers Operation

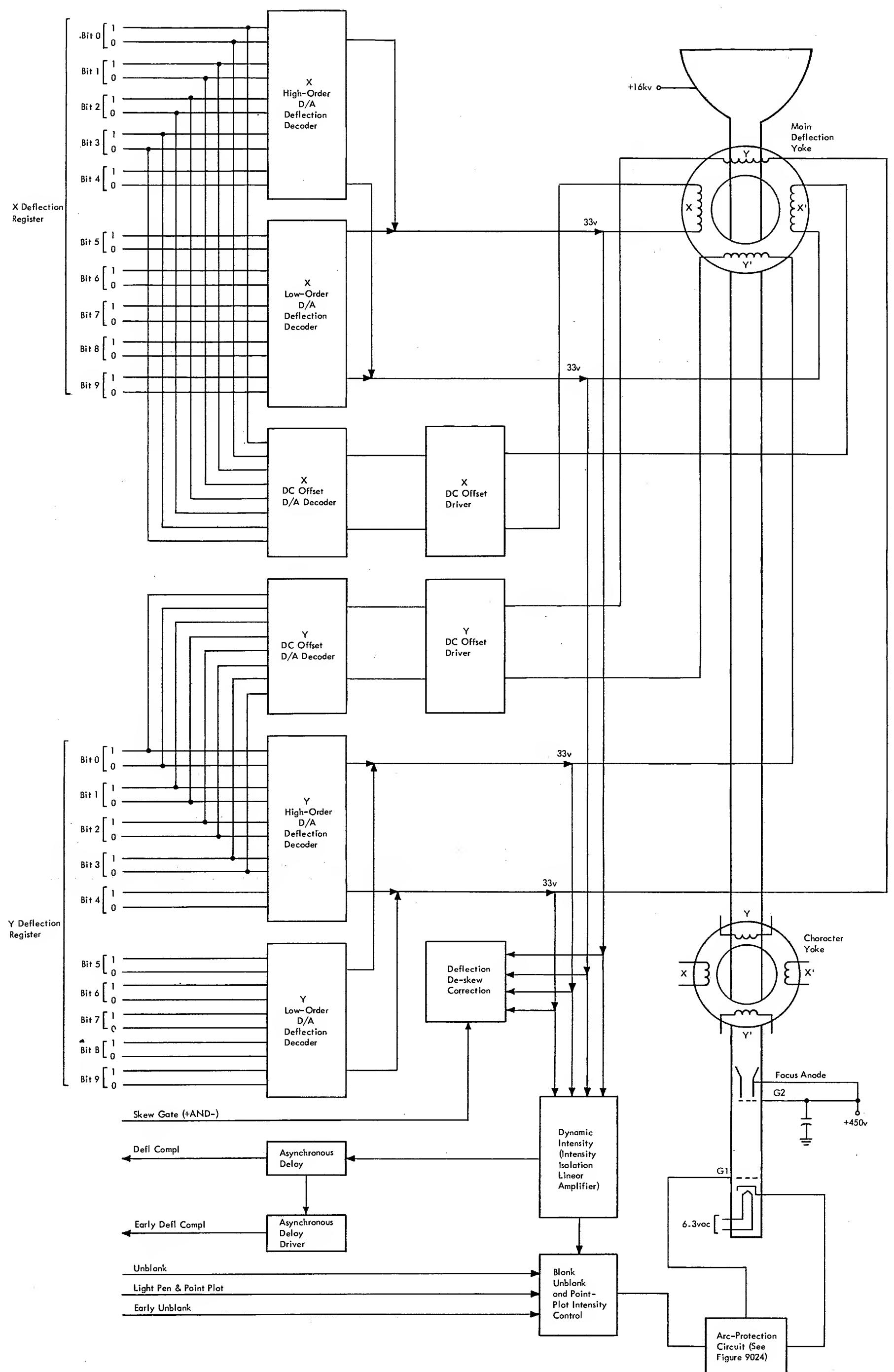


Figure 2015. CRT Beam Deflection and Control, Block Diagram

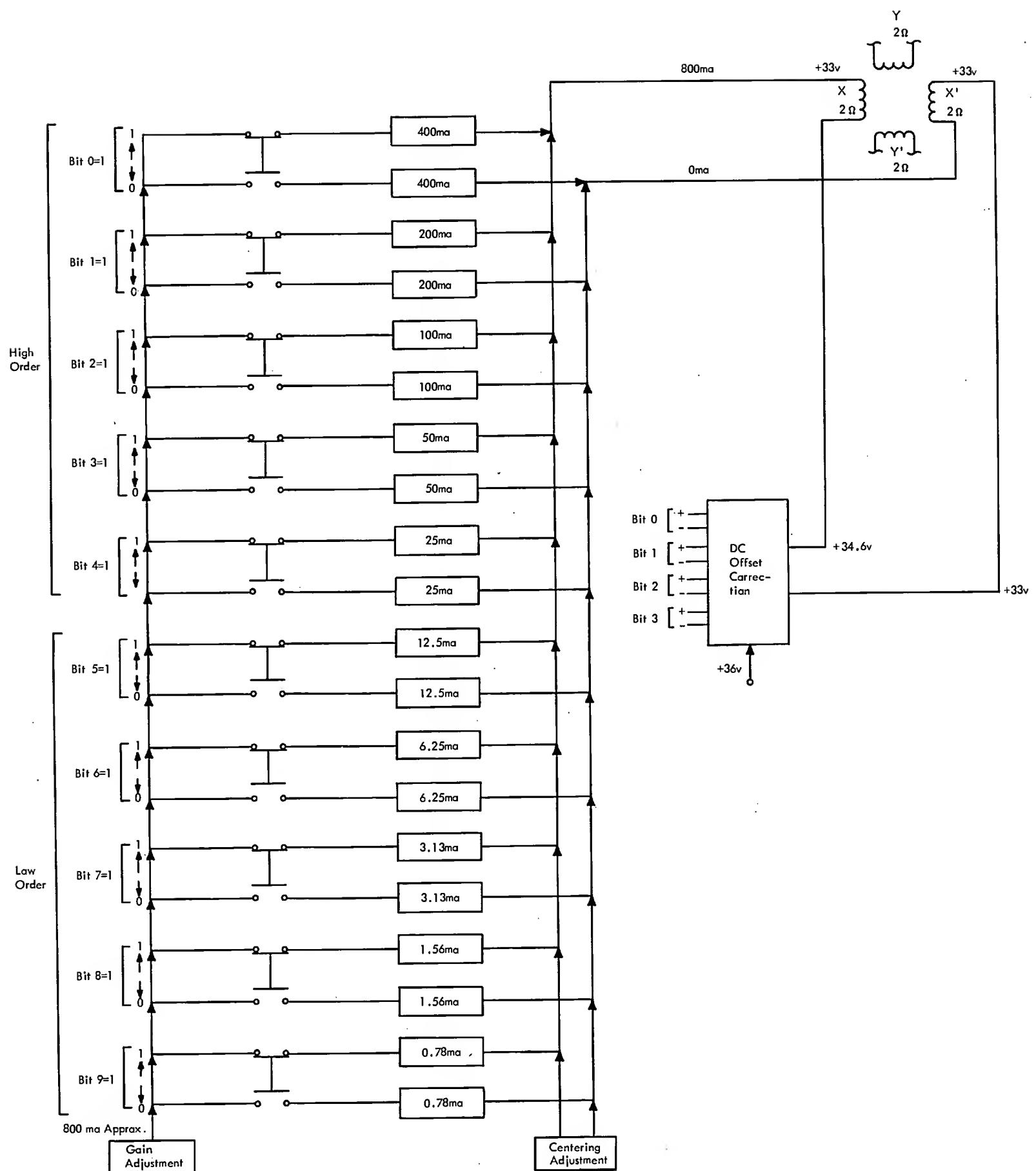
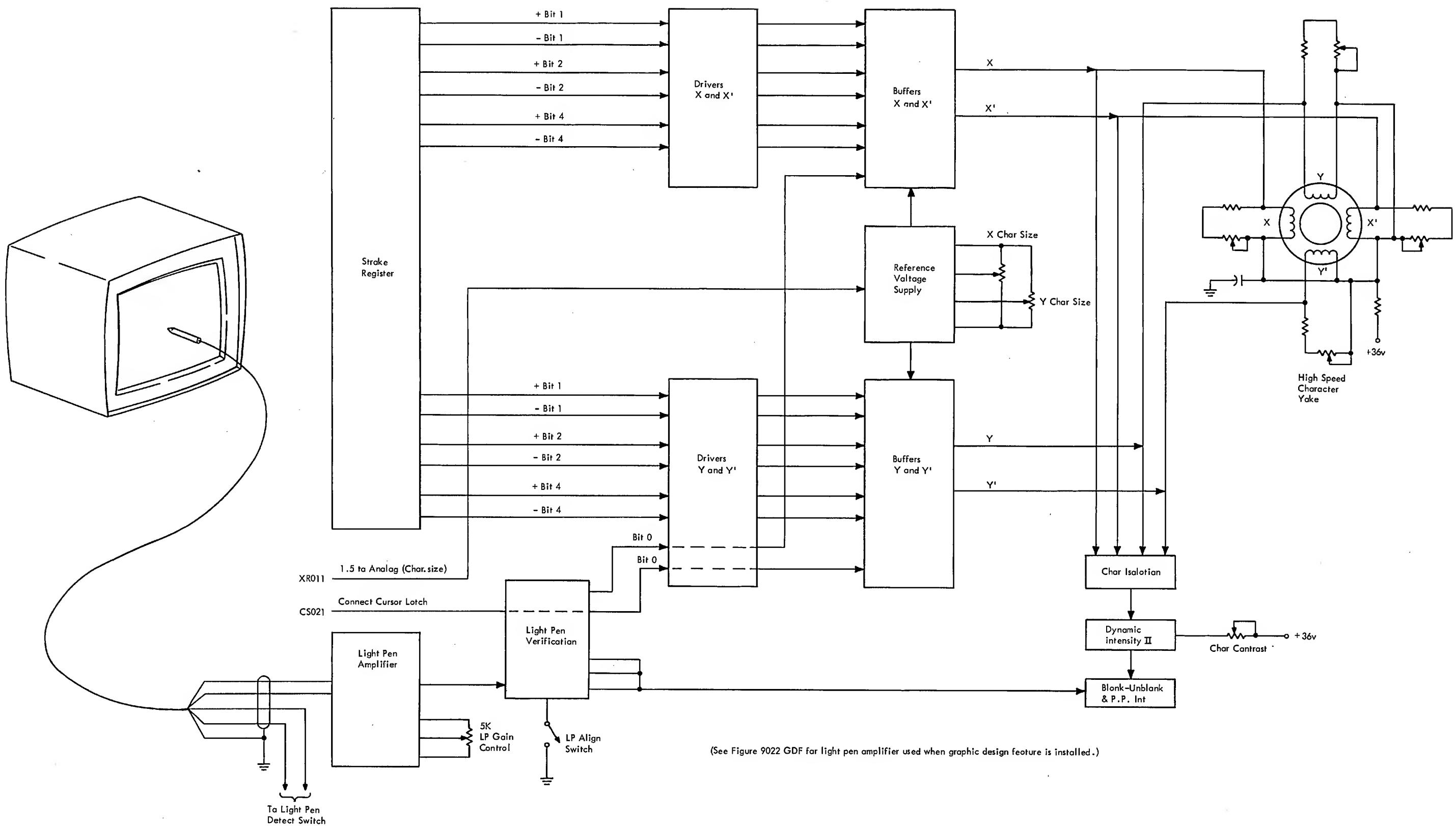


Figure 2016. Yoke Current Distribution, Full X Deflection



•Figure 2017. Character Deflection and Control, Block Diagram

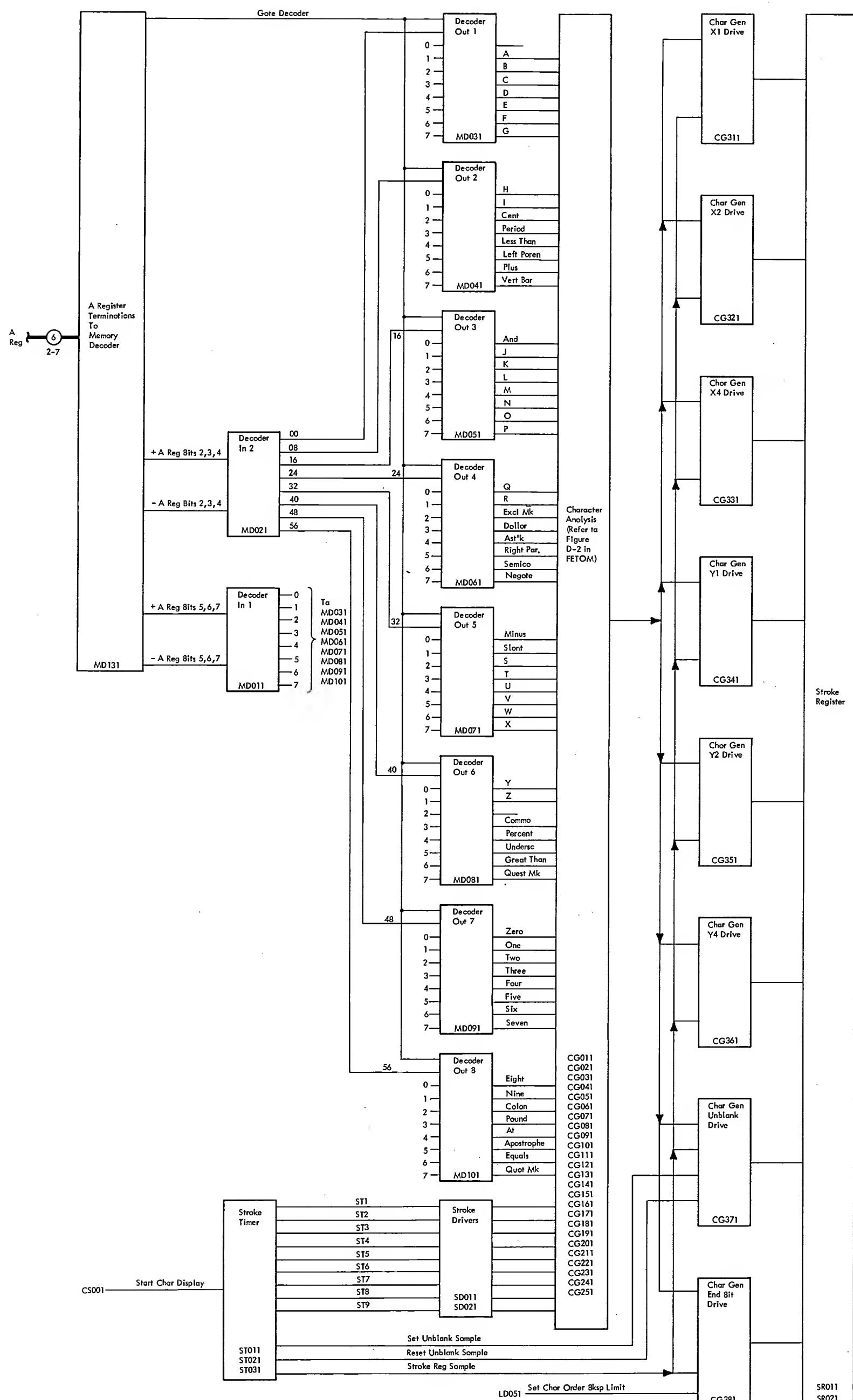
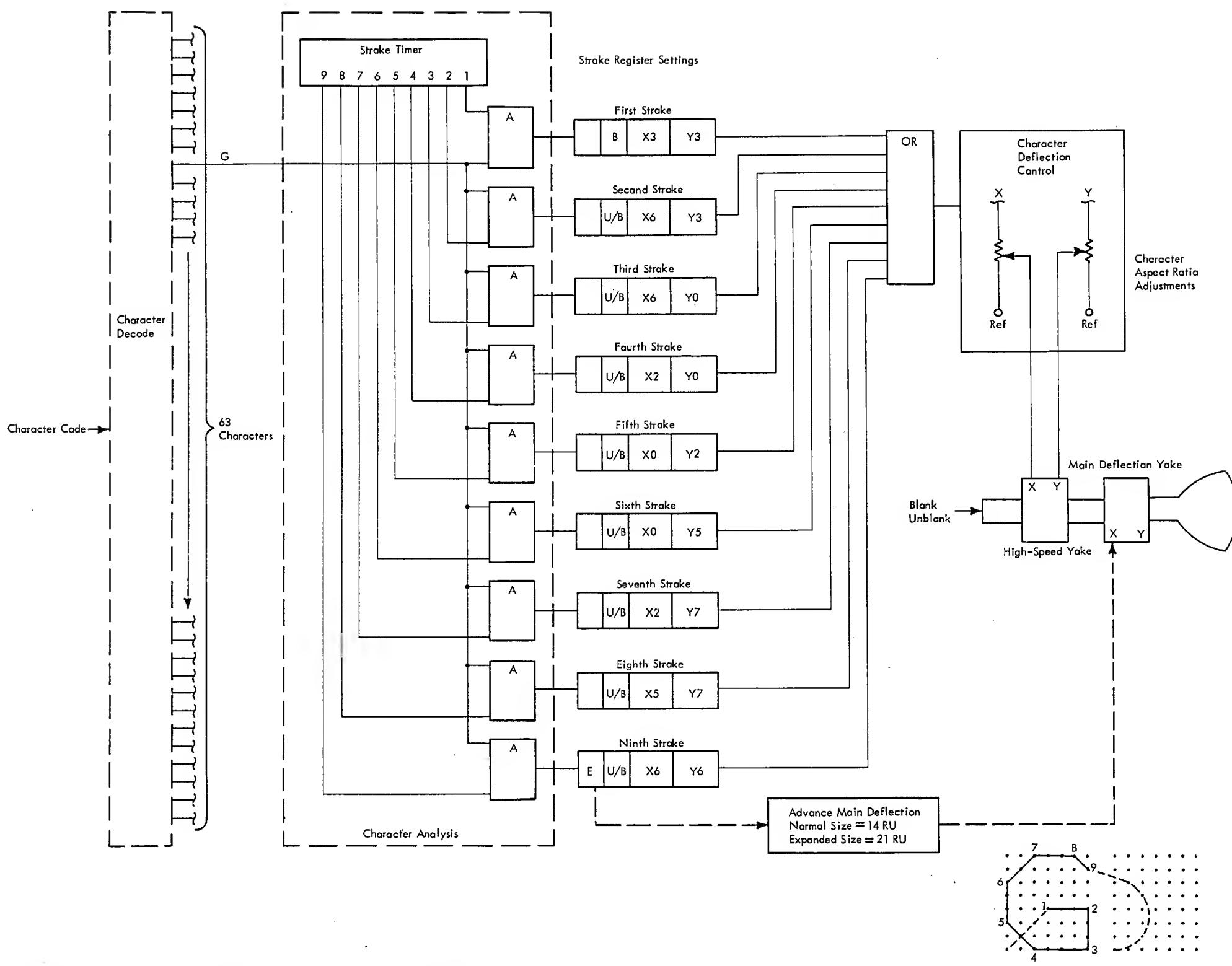


Figure 2018. Character Generator, Block Diagram



•Figure 5000. Typical Character Generator Operation, Logic Diagram

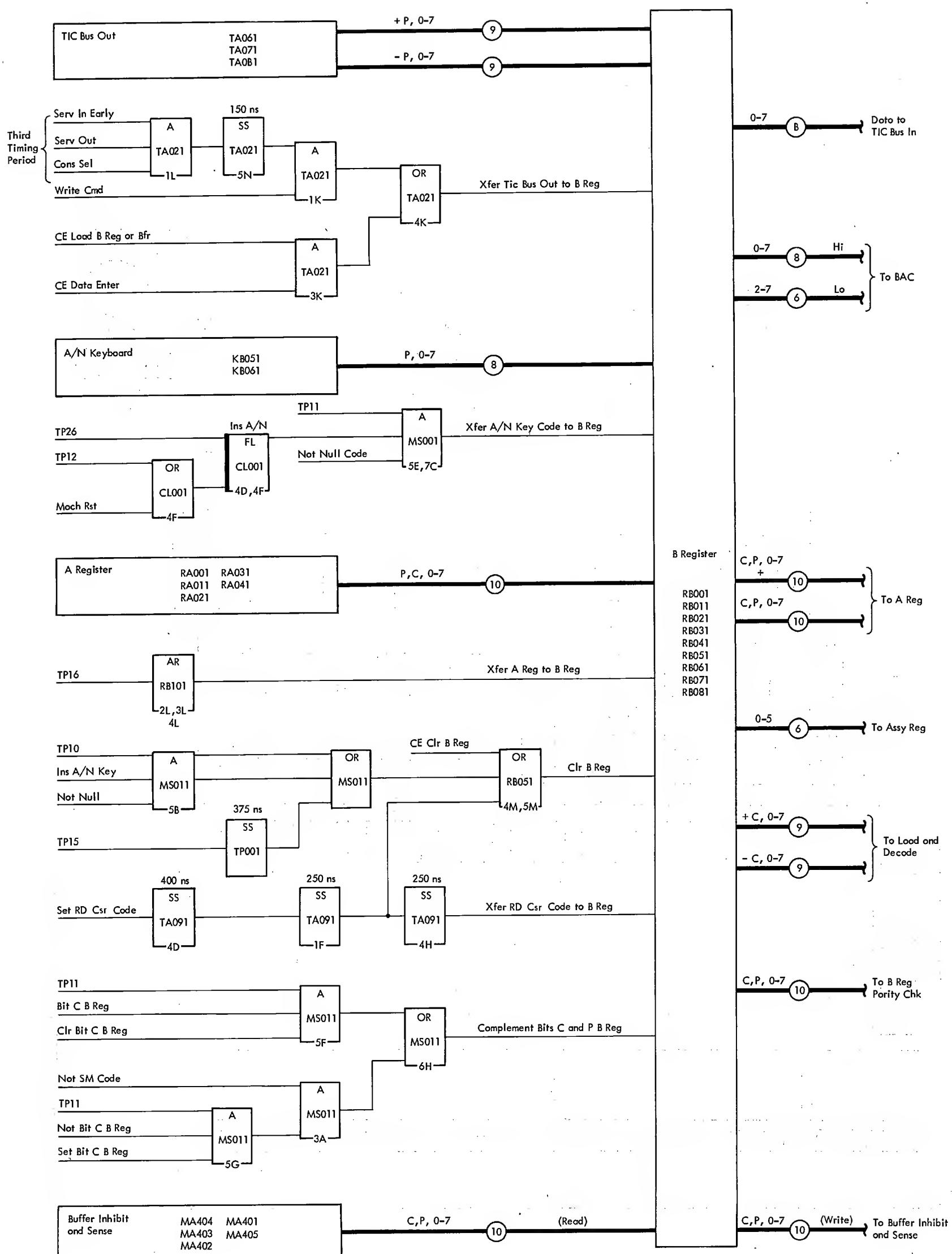


Figure 5001. B Register, Functional Diagram

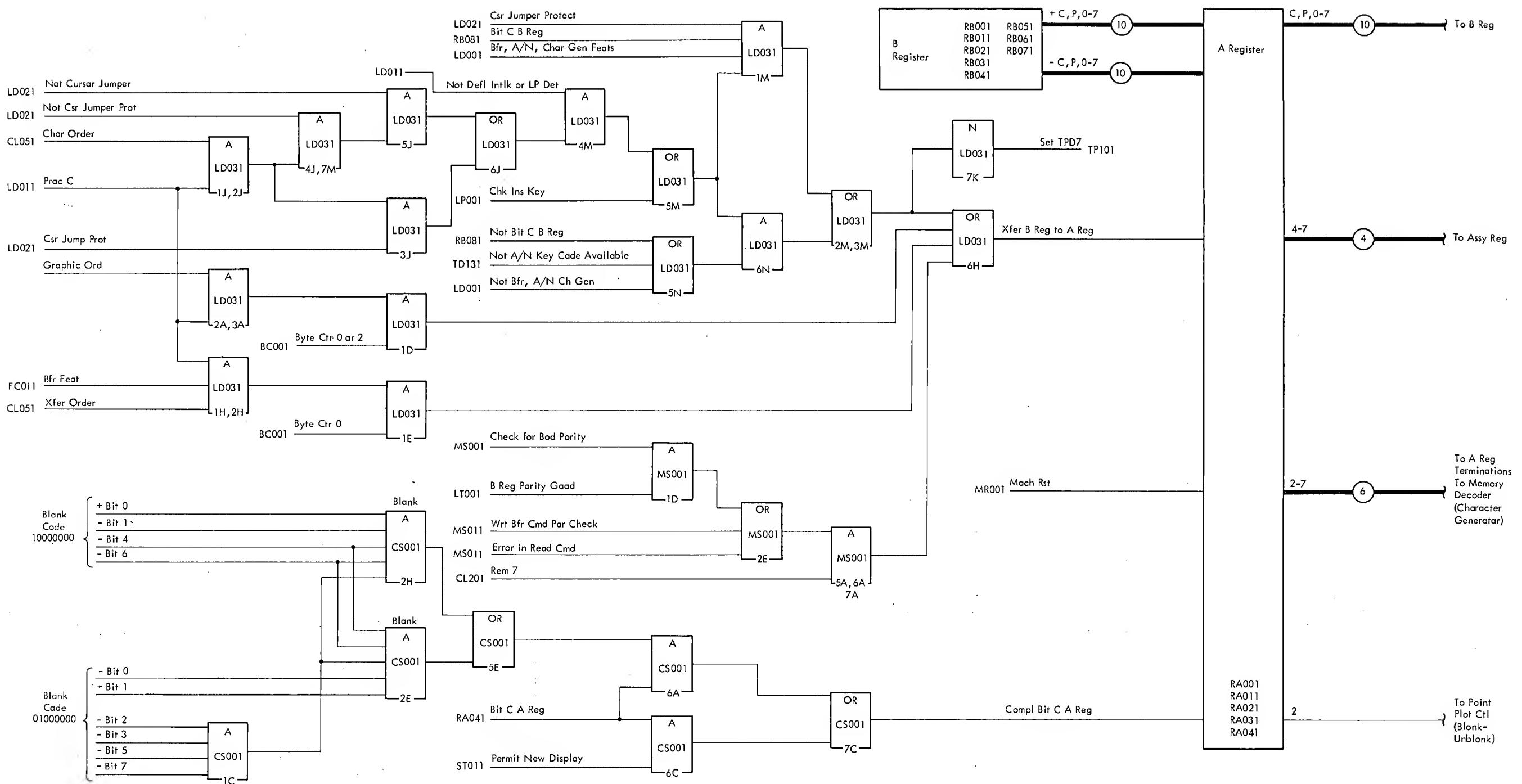


Figure 5002. A Register, Functional Diagram

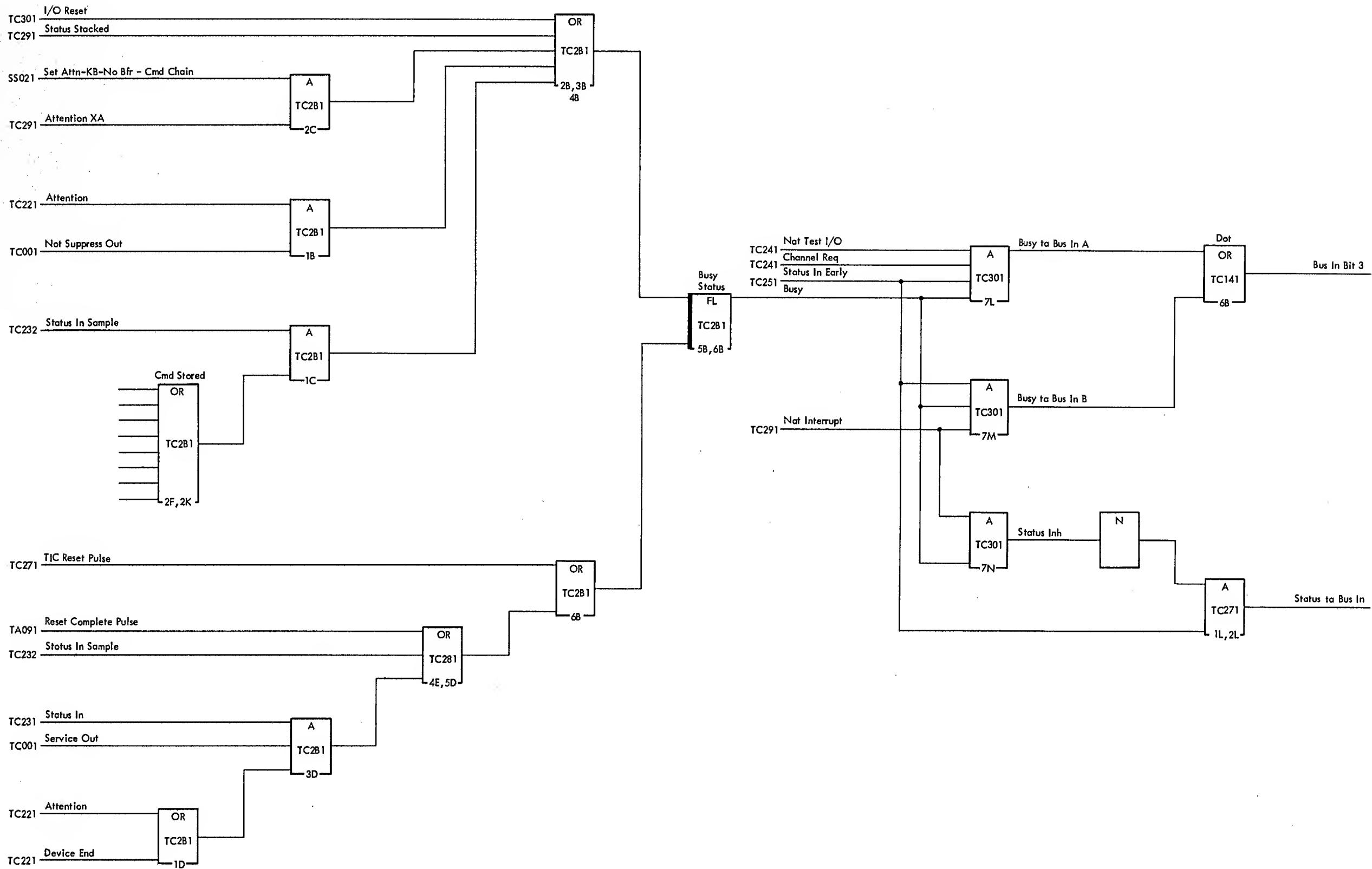


Figure 5003. Status Register, Functional Diagram (Sheet 1 of 2)

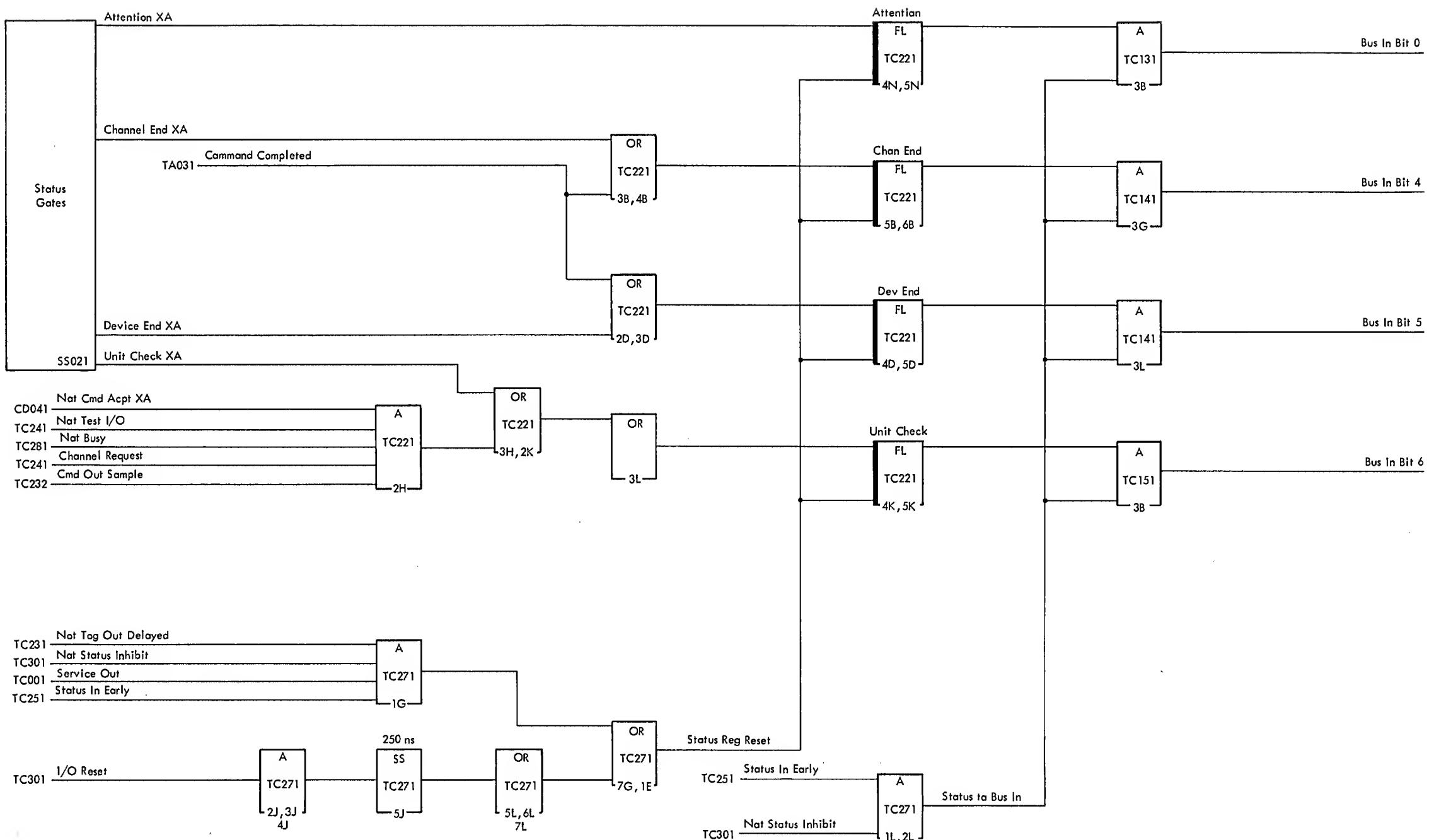


Figure 5003. Status Register, Functional Diagram (Sheet 2 of 2)

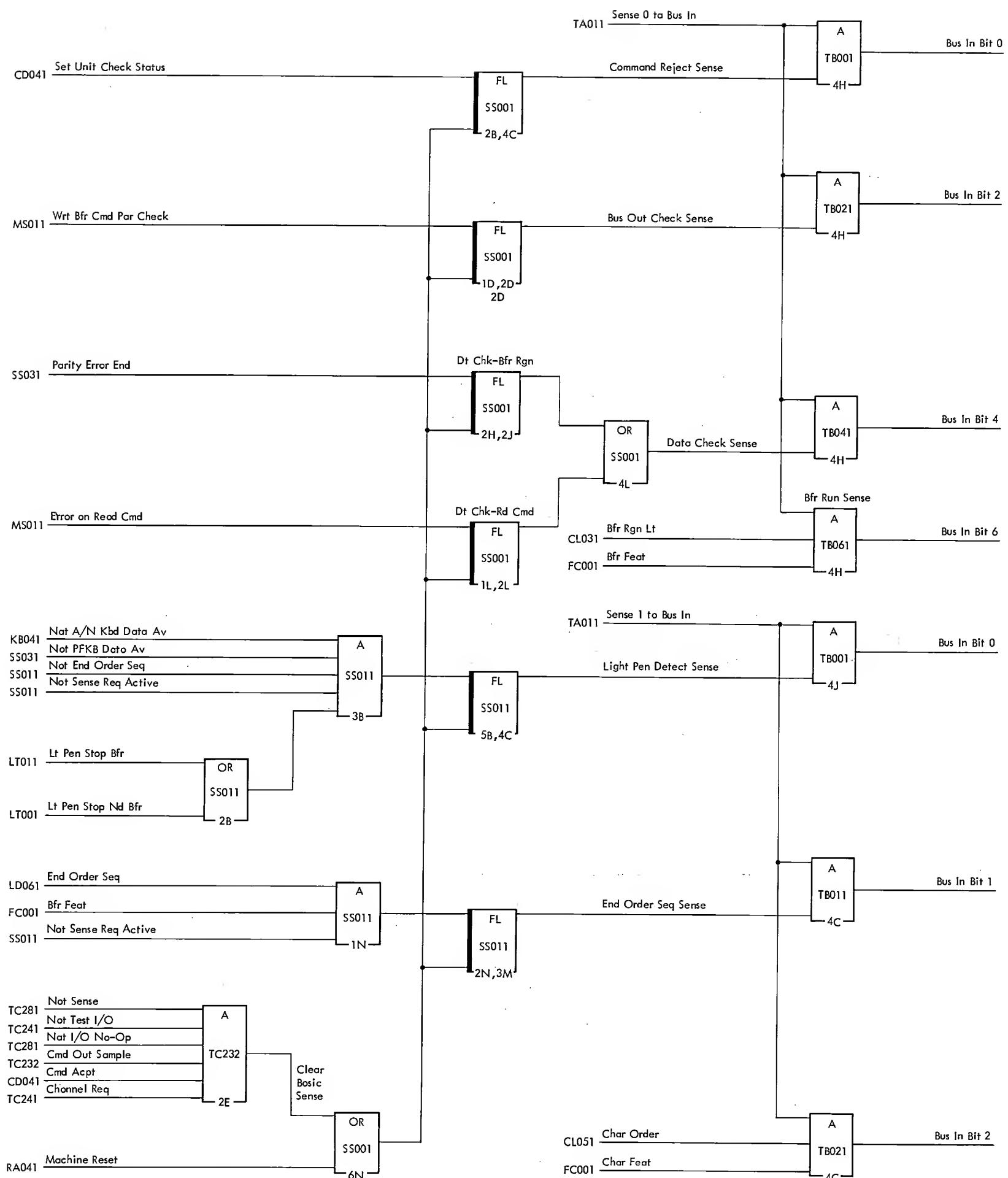


Figure 5004. Sense Register, Bytes 1 and 2, Functional Diagram

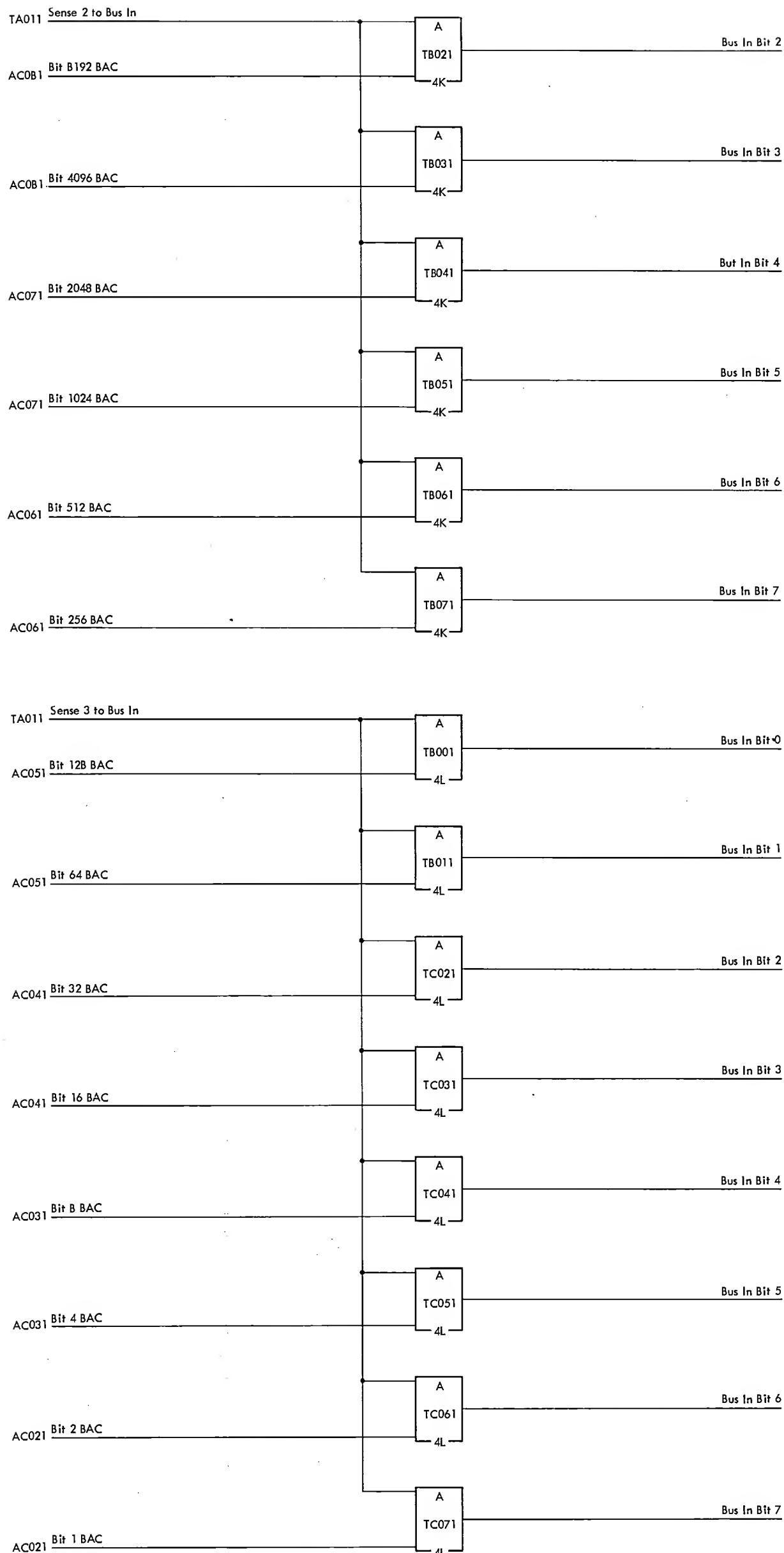


Figure 5005. Sense Register, Bytes 3 and 4, Functional Diagram

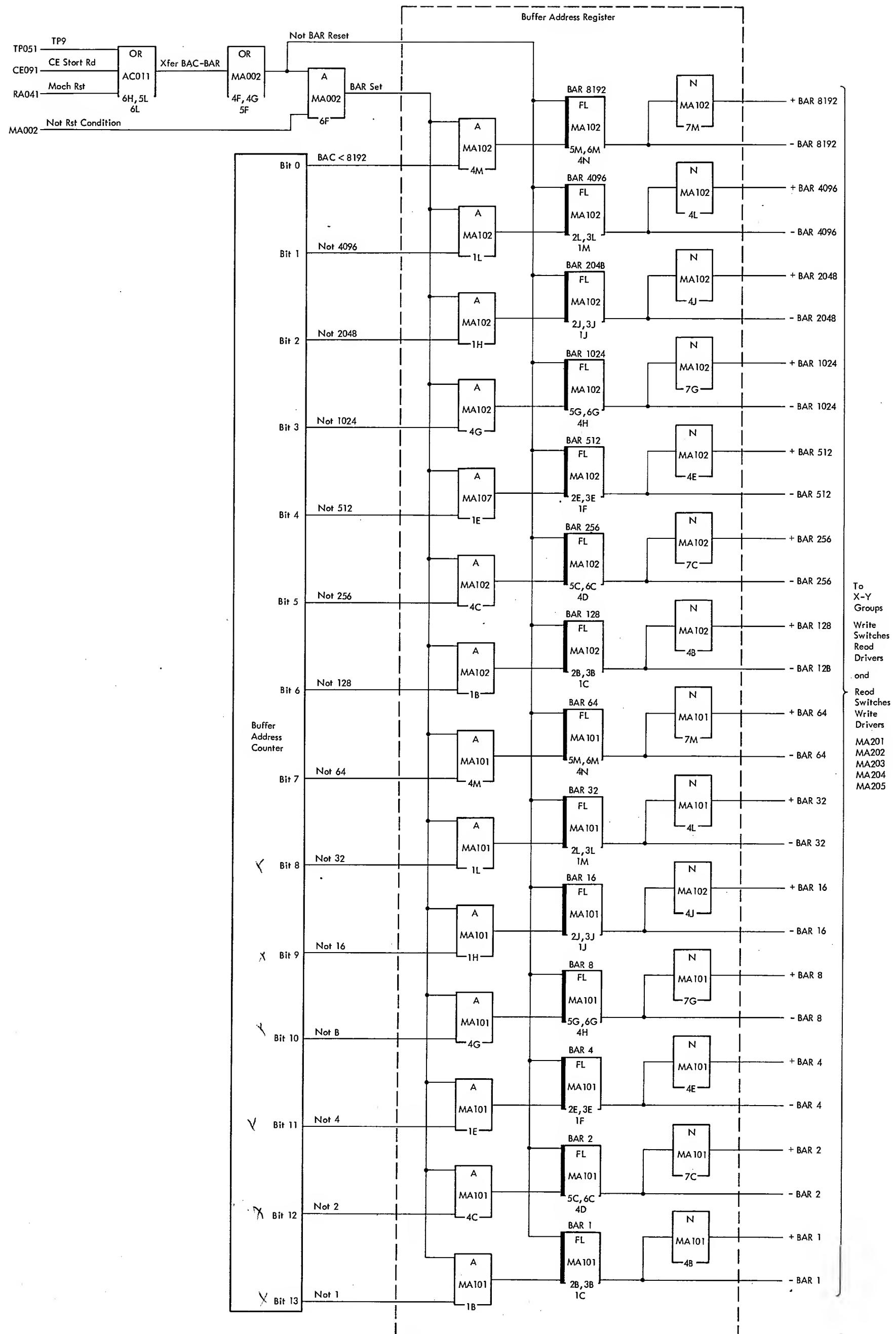


Figure 5006. Buffer Address Register, Functional Diagram

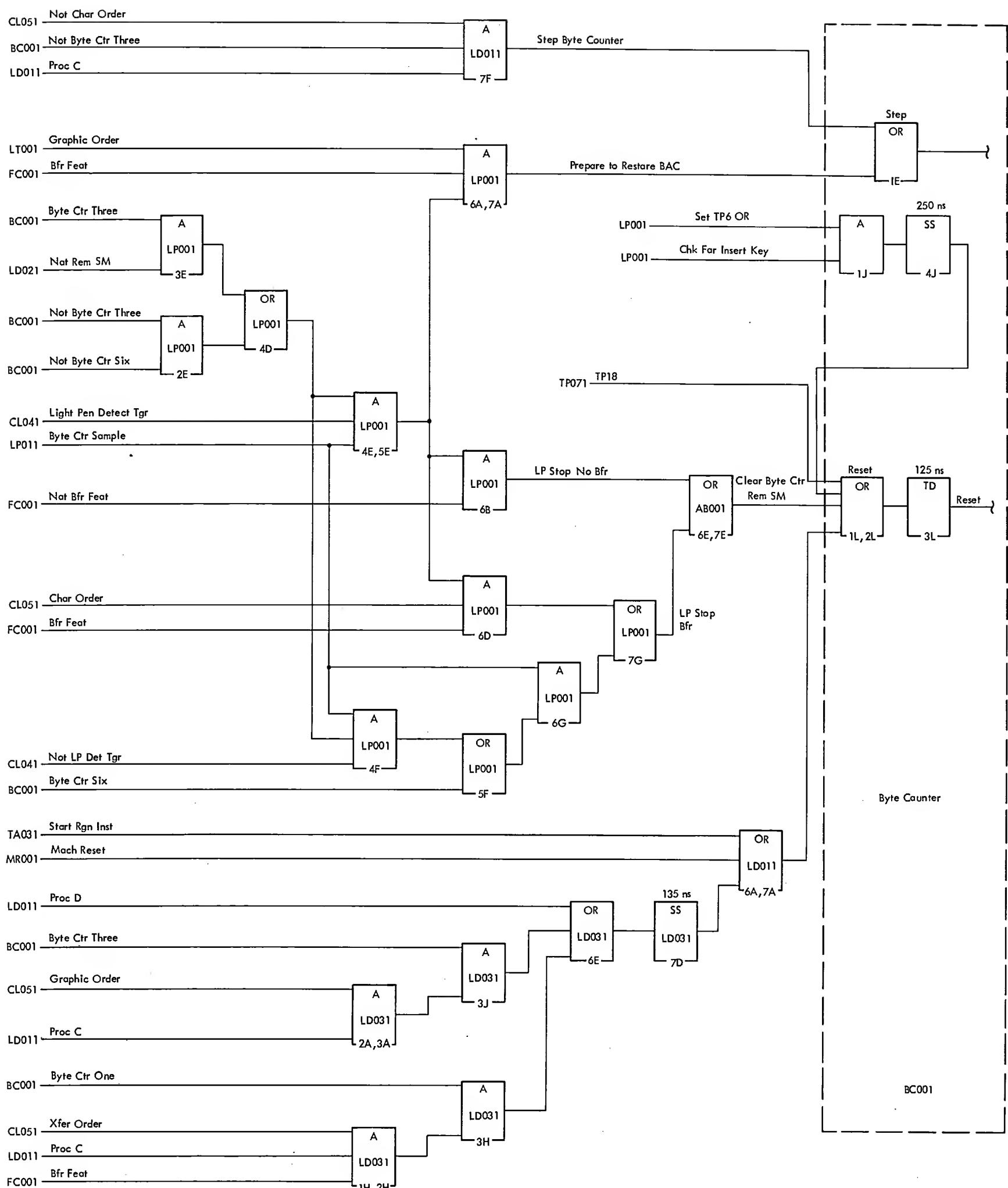


Figure 5007. Byte Counter, Functional Diagram

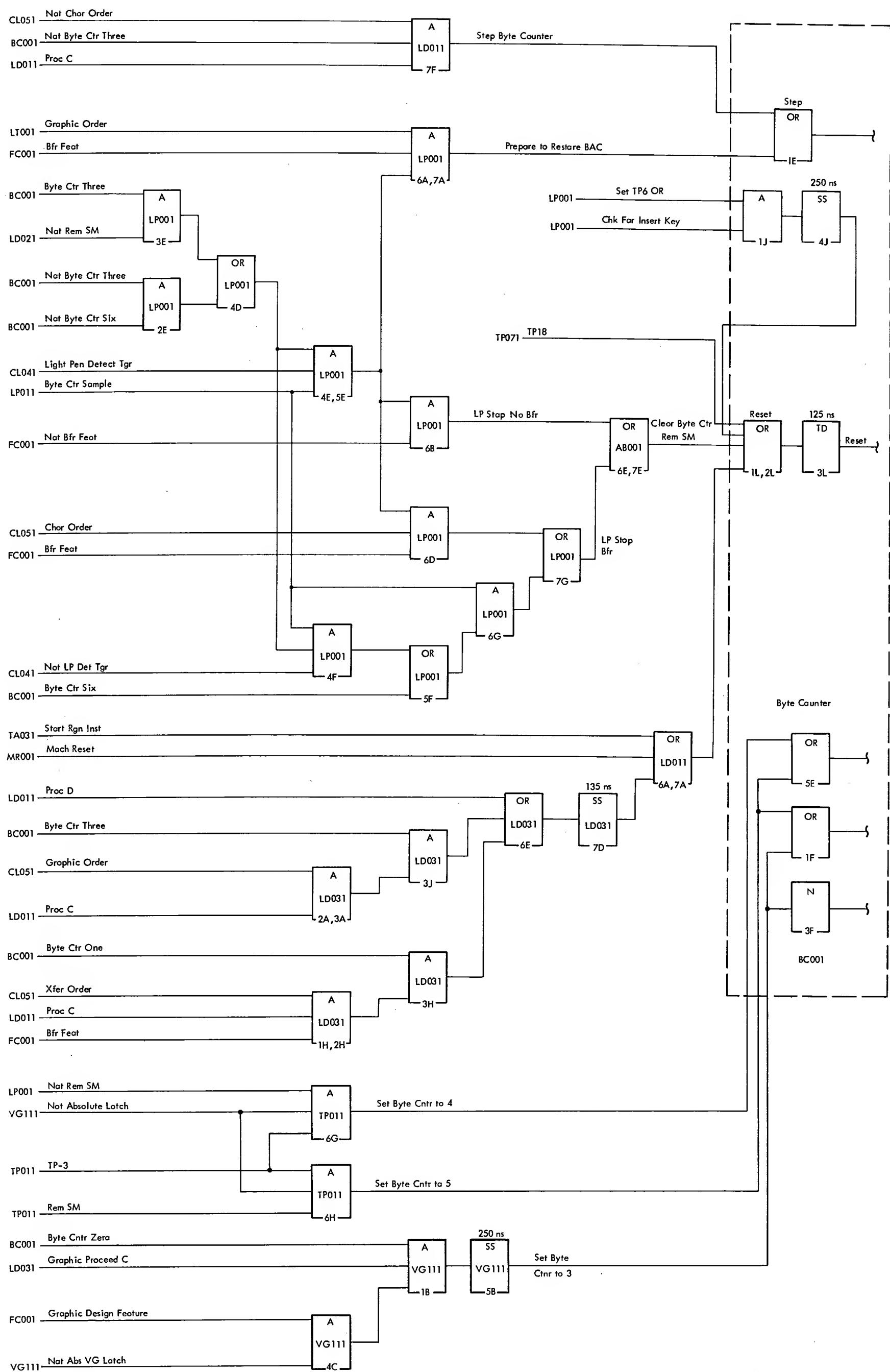


Figure 5007GDF. Byte Counter, Functional Diagram (for GDF Machines)

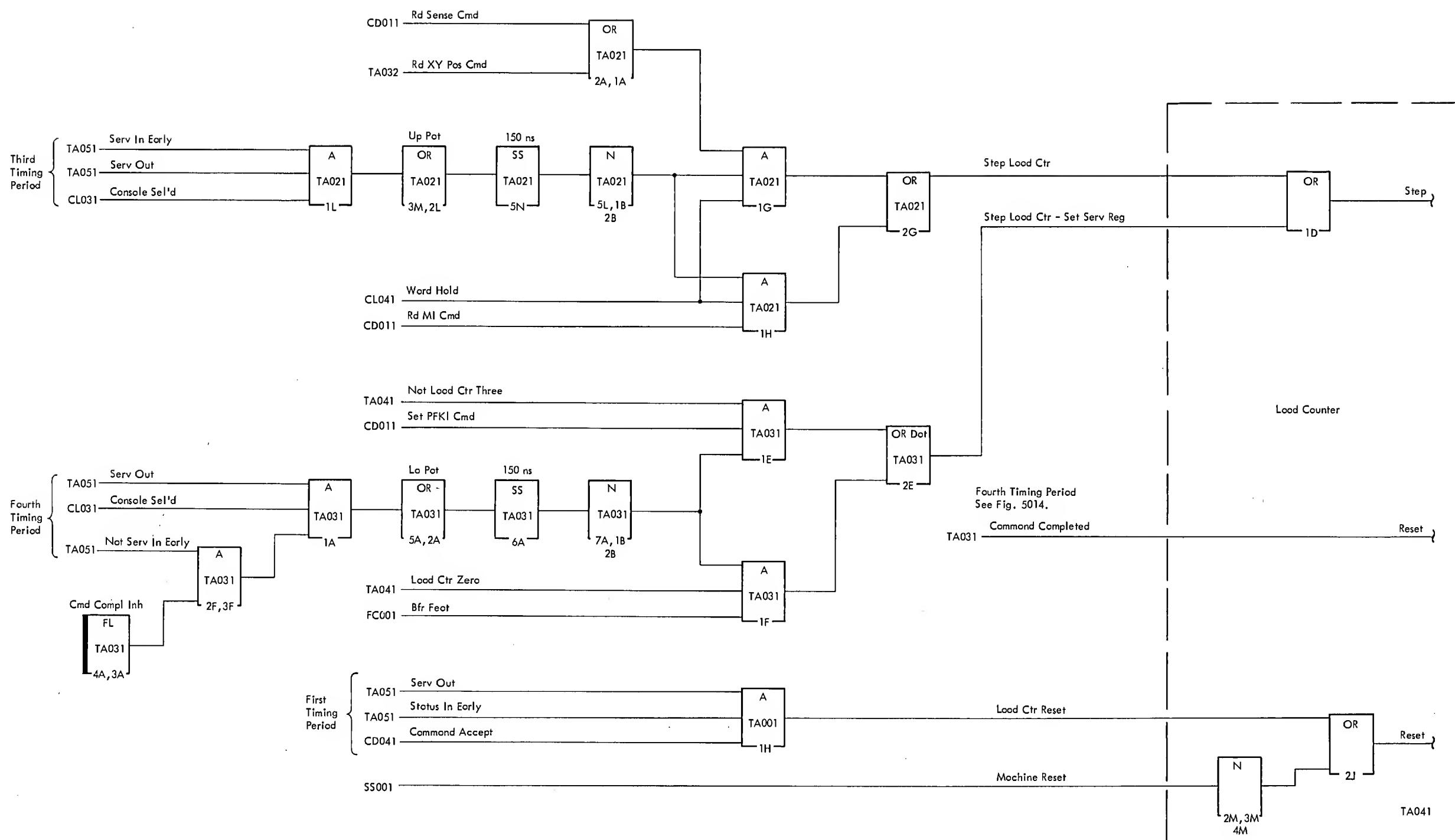


Figure 5008. Load Counter, Functional Diagram

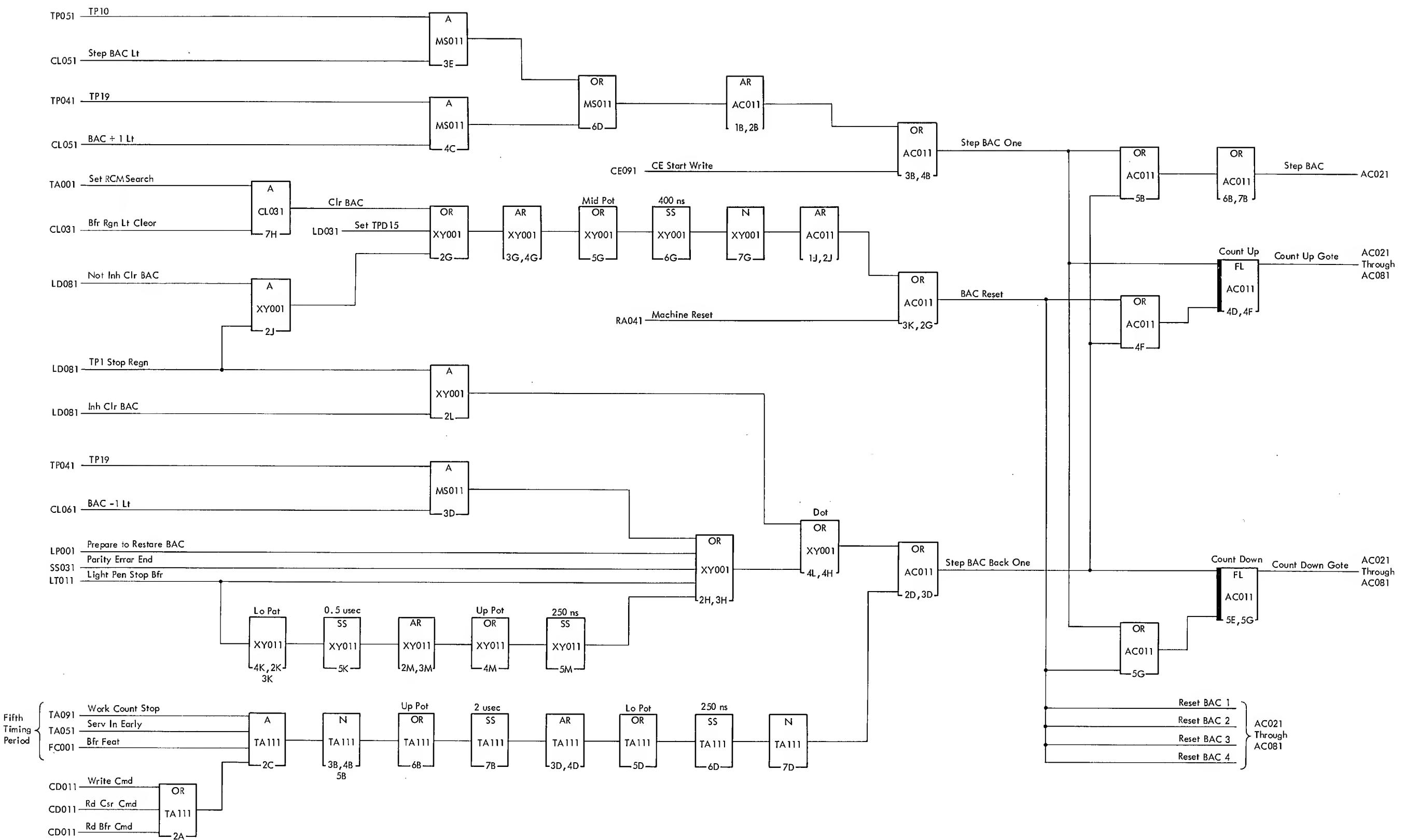


Figure 5009. Buffer Address Counter, Functional Diagram (Sheet 1 of 2)

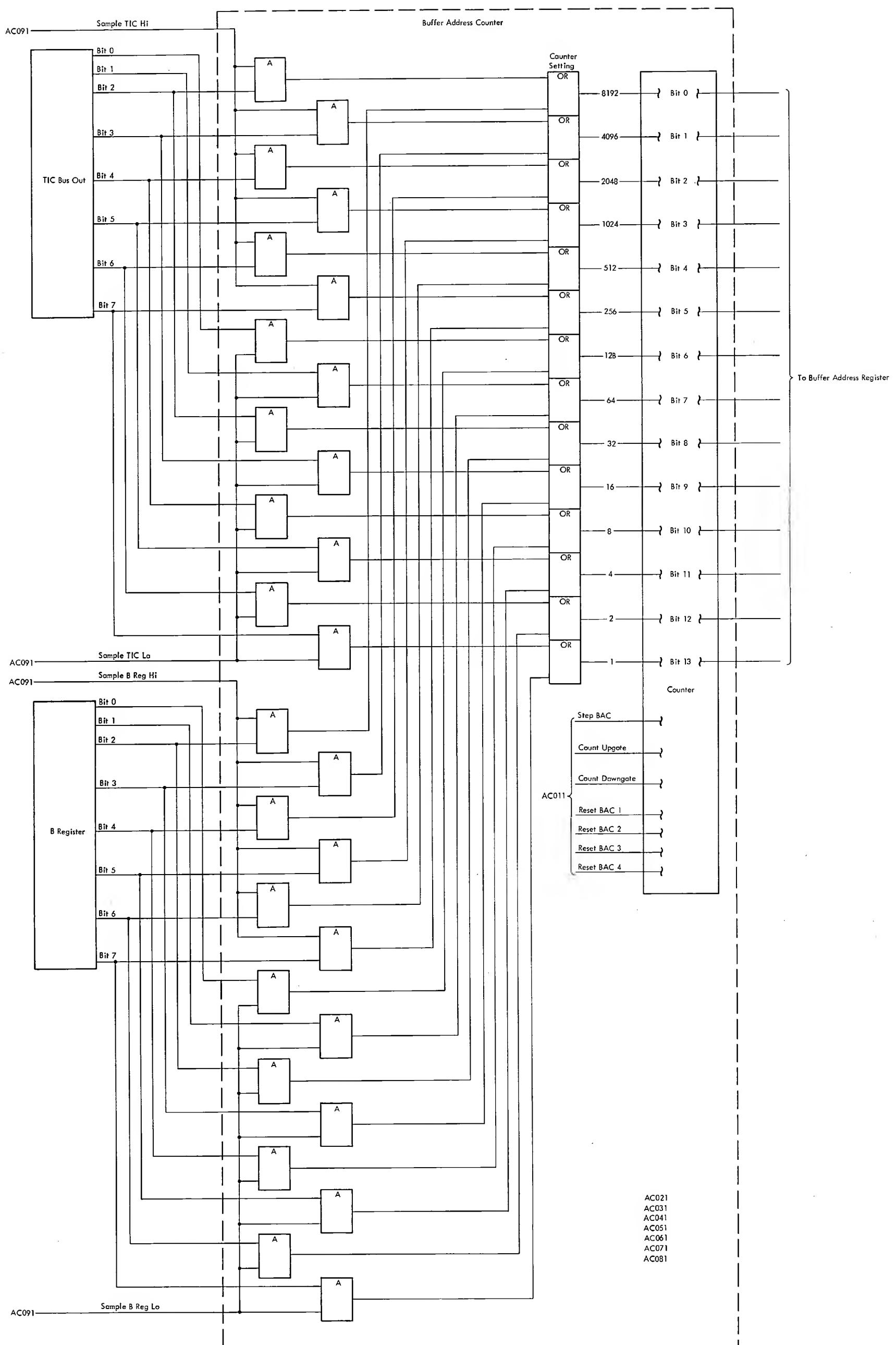


Figure 5009. Buffer Address Counter, Functional Diagram (Sheet 2 of 2)

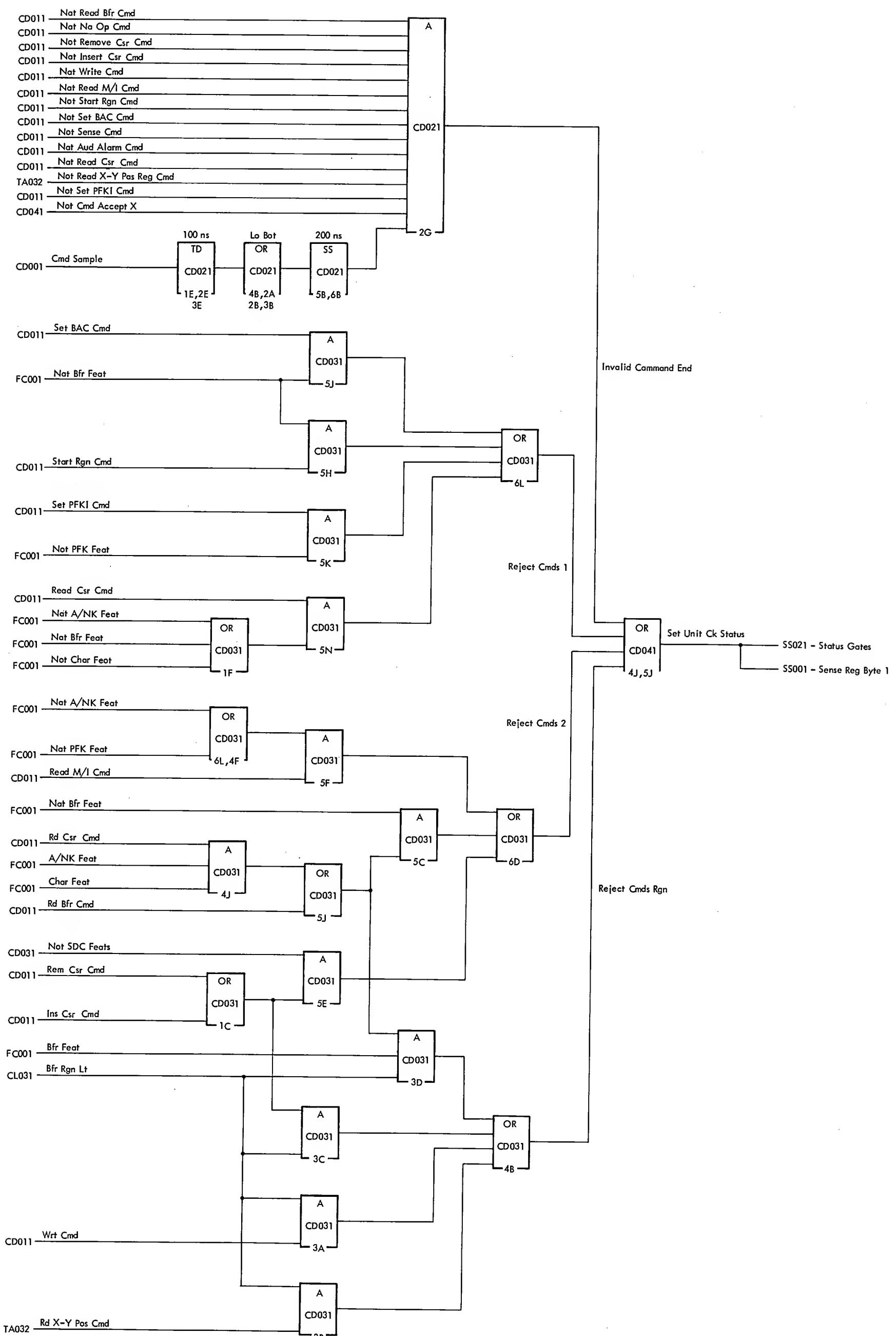


Figure 5010. Command Validation, Functional Diagram (Sheet 1 of 2)

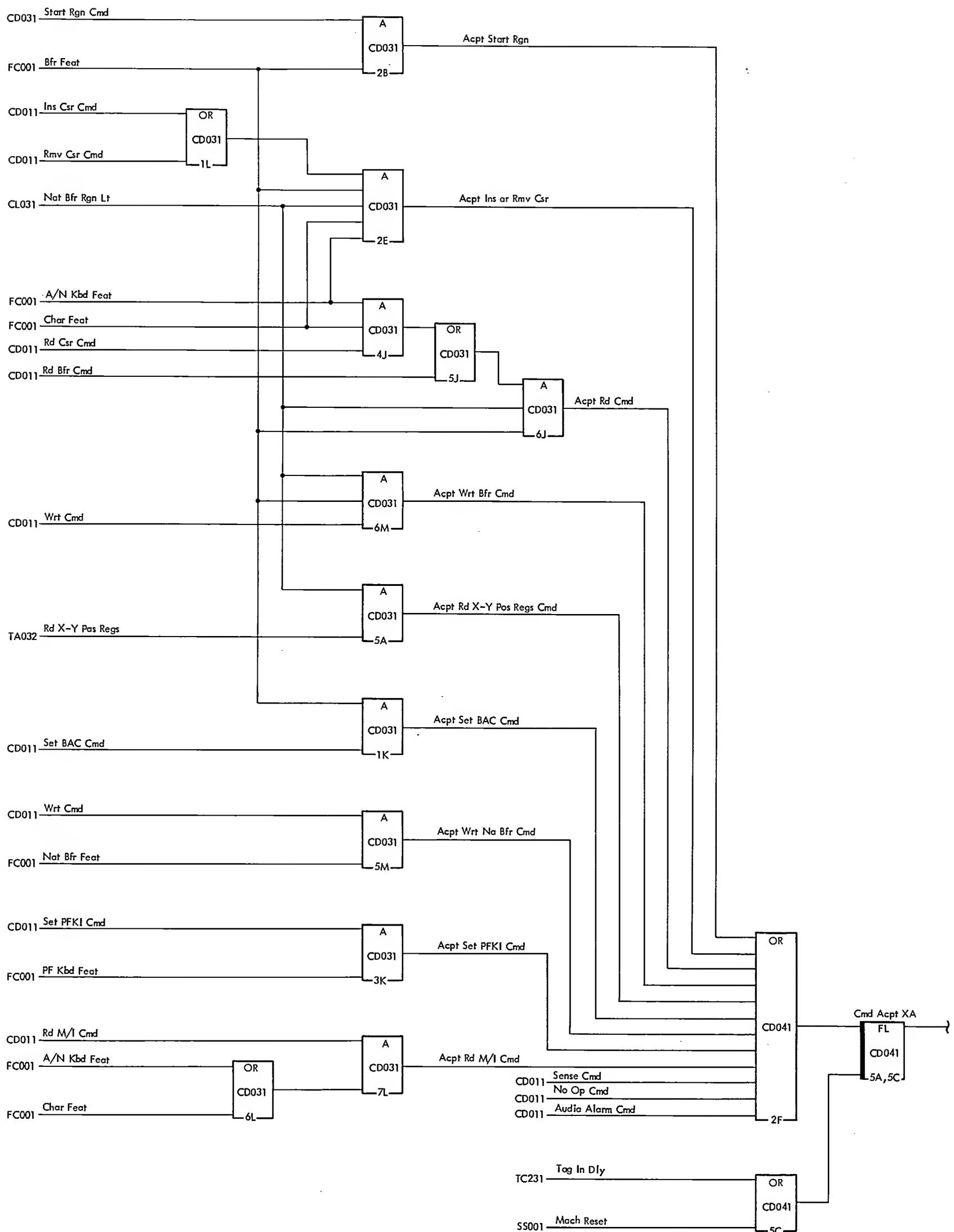


Figure 5010. Command Validation, Functional Diagram (Sheet 2 of 2)

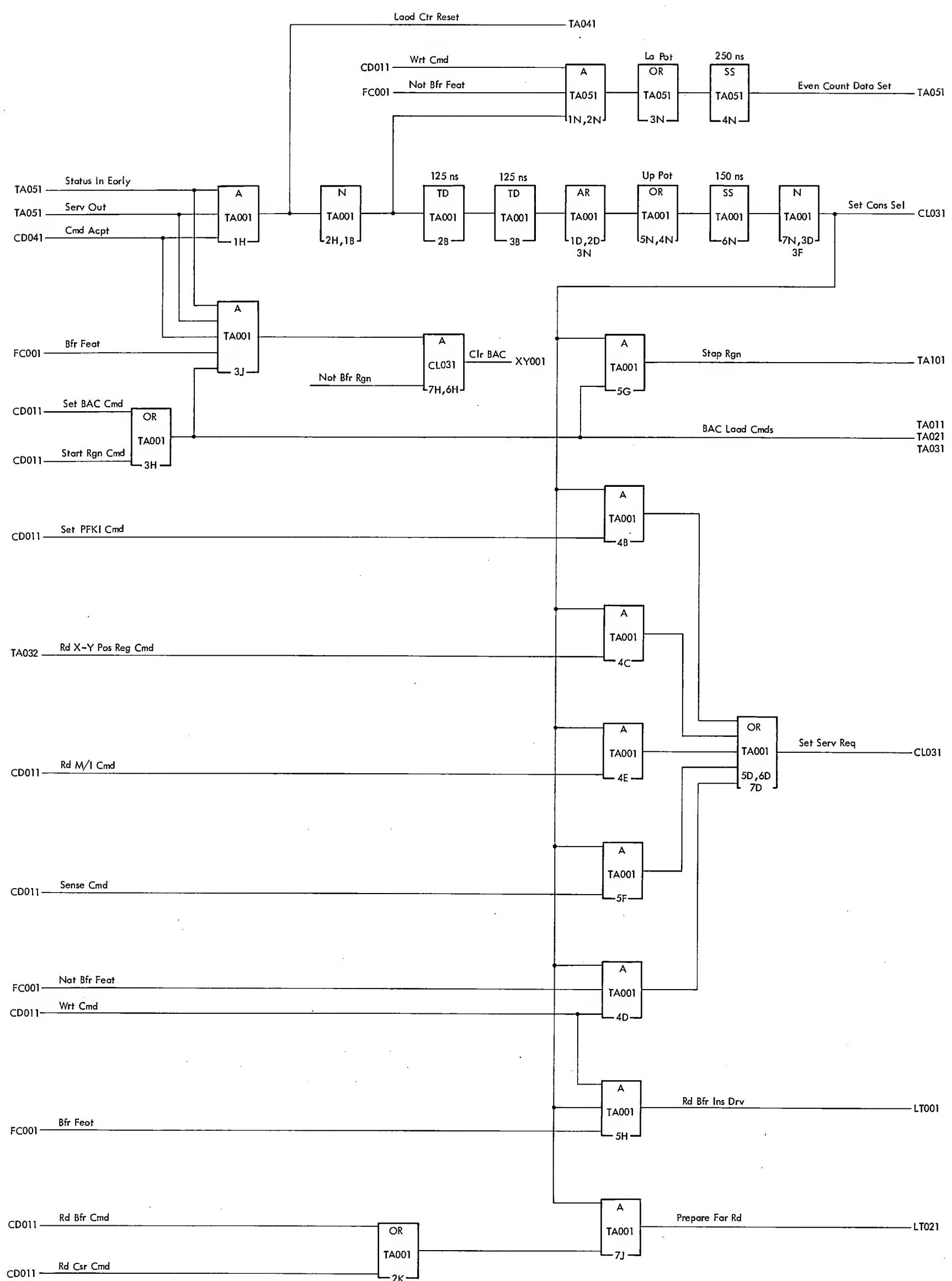


Figure 5011. First Timing Period, Functional Diagram

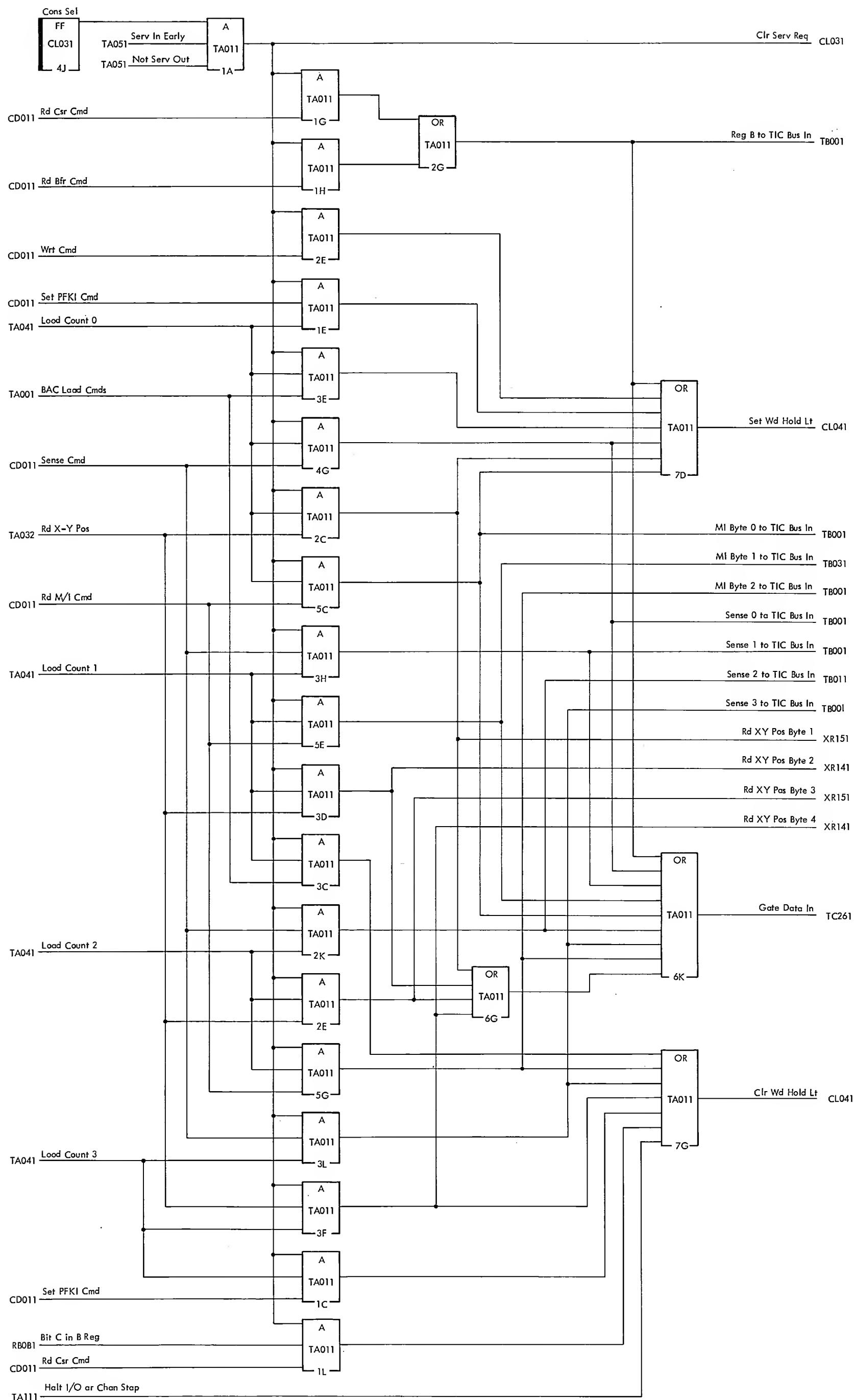


Figure 5012. Second Timing Period, Functional Diagram

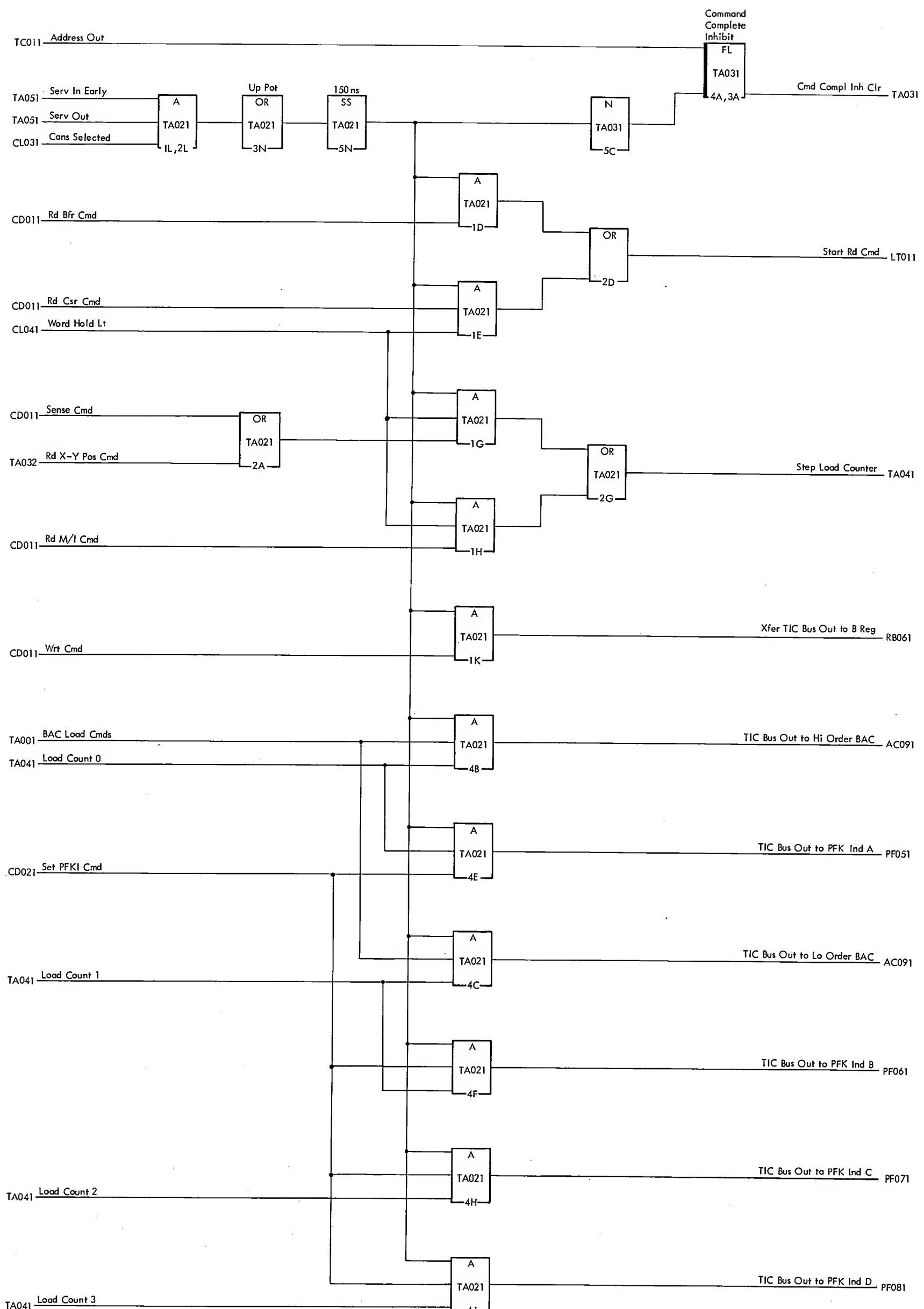


Figure 5013. Third Timing Period, Functional Diagram

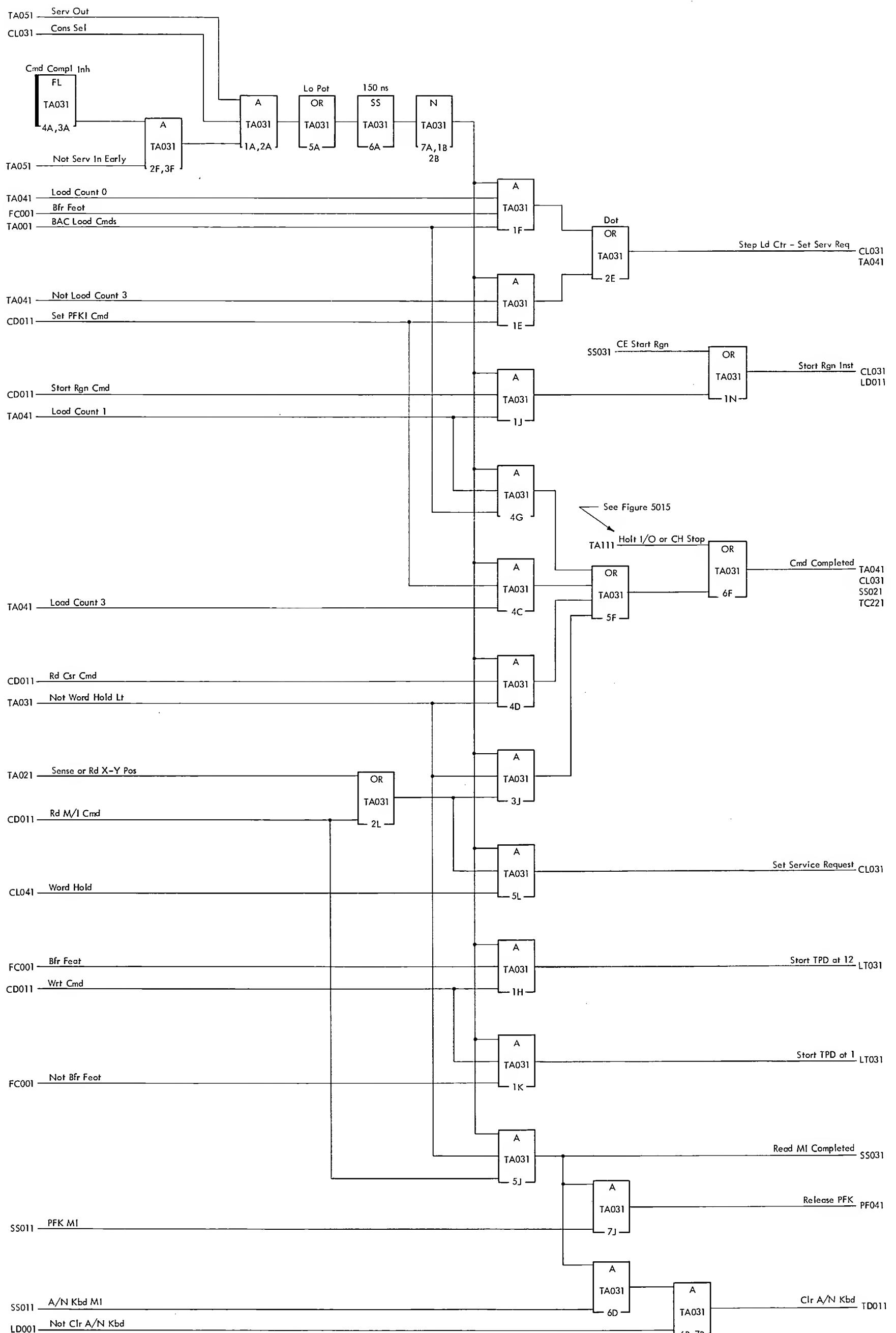


Figure 5014. Fourth Timing Period, Functional Diagram

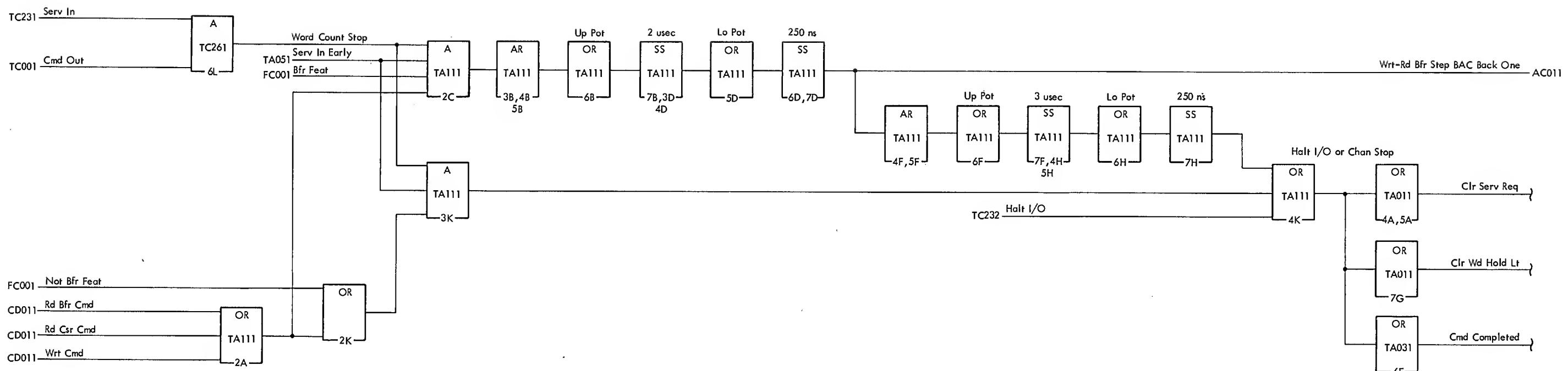


Figure 5015. Fifth Timing Period, Functional Diagram

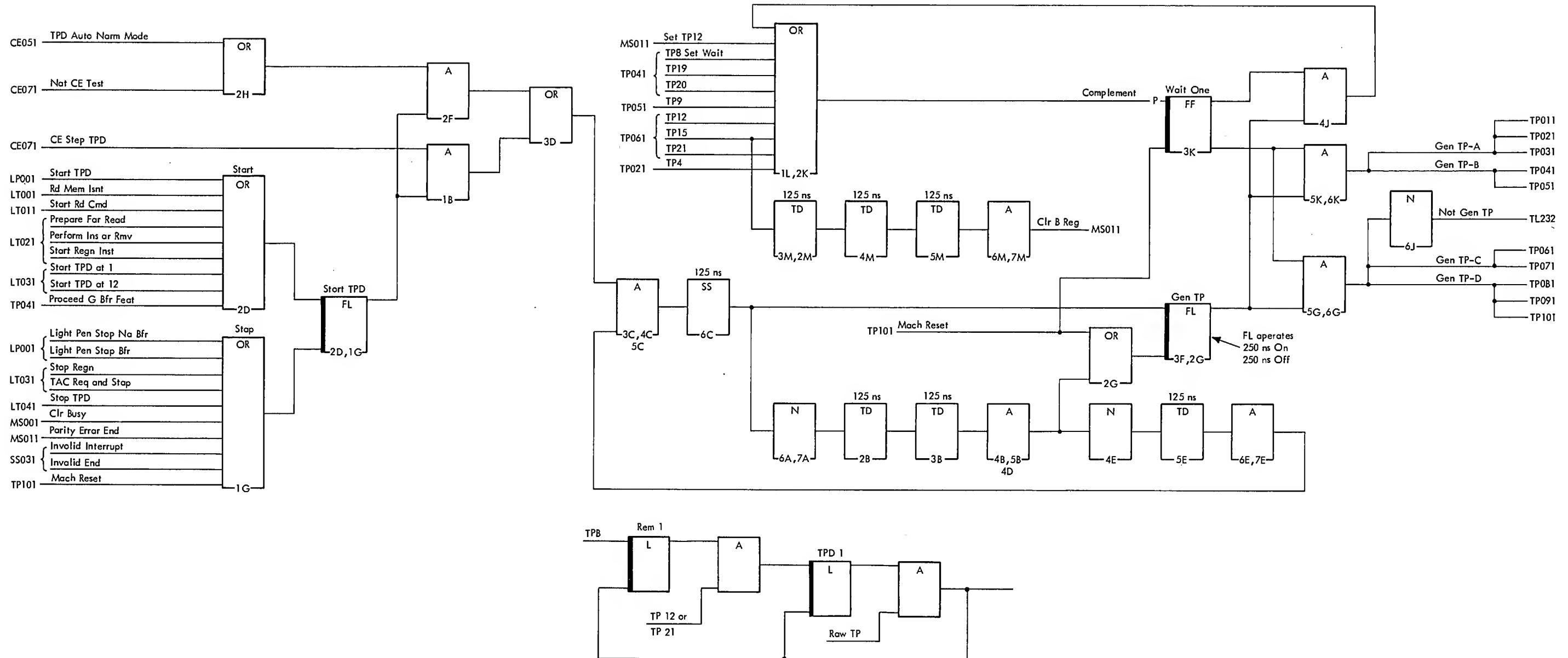


Figure 5016. Timing Pulse Generator, Functional Diagram

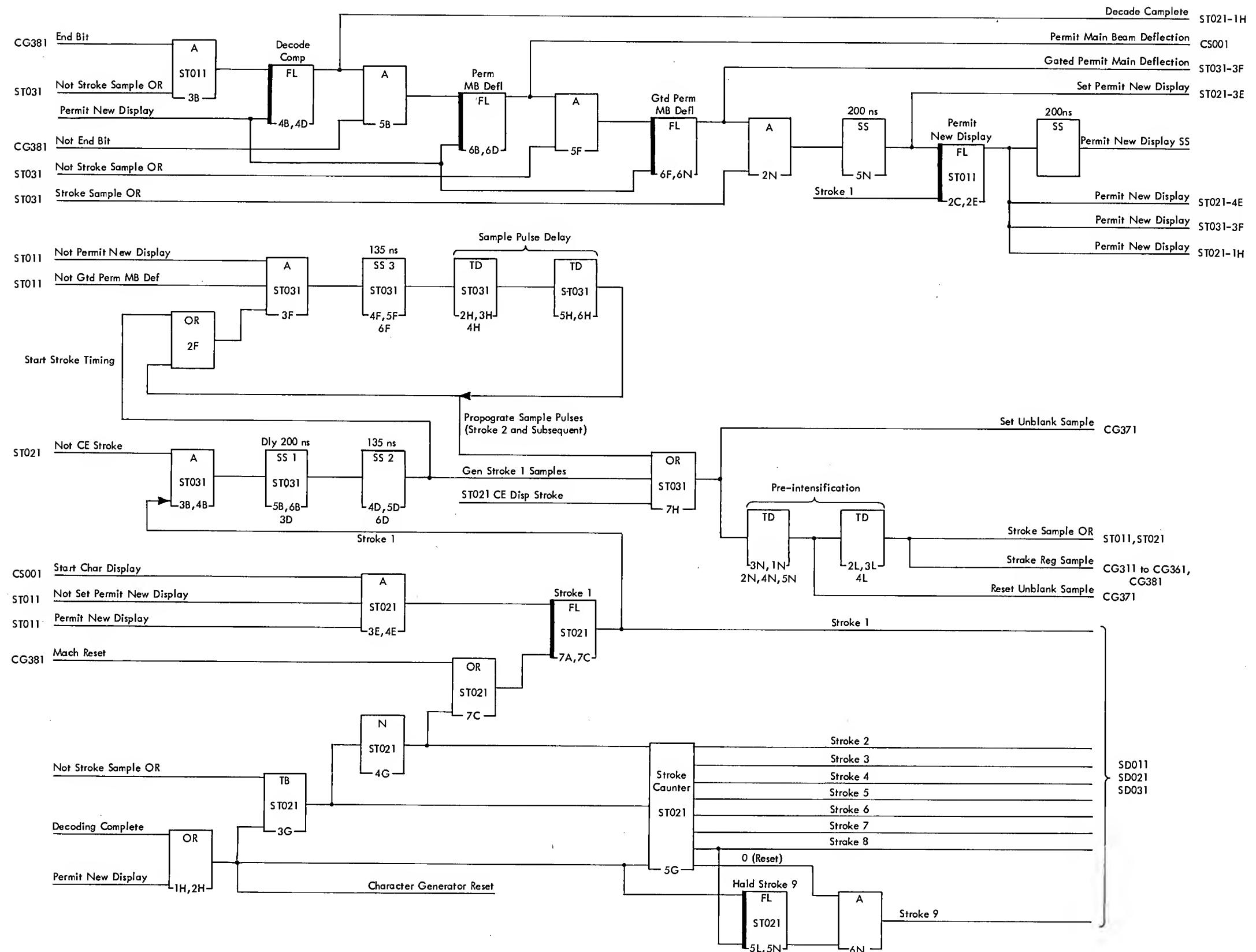


Figure 5017. Stroke Timing and Control

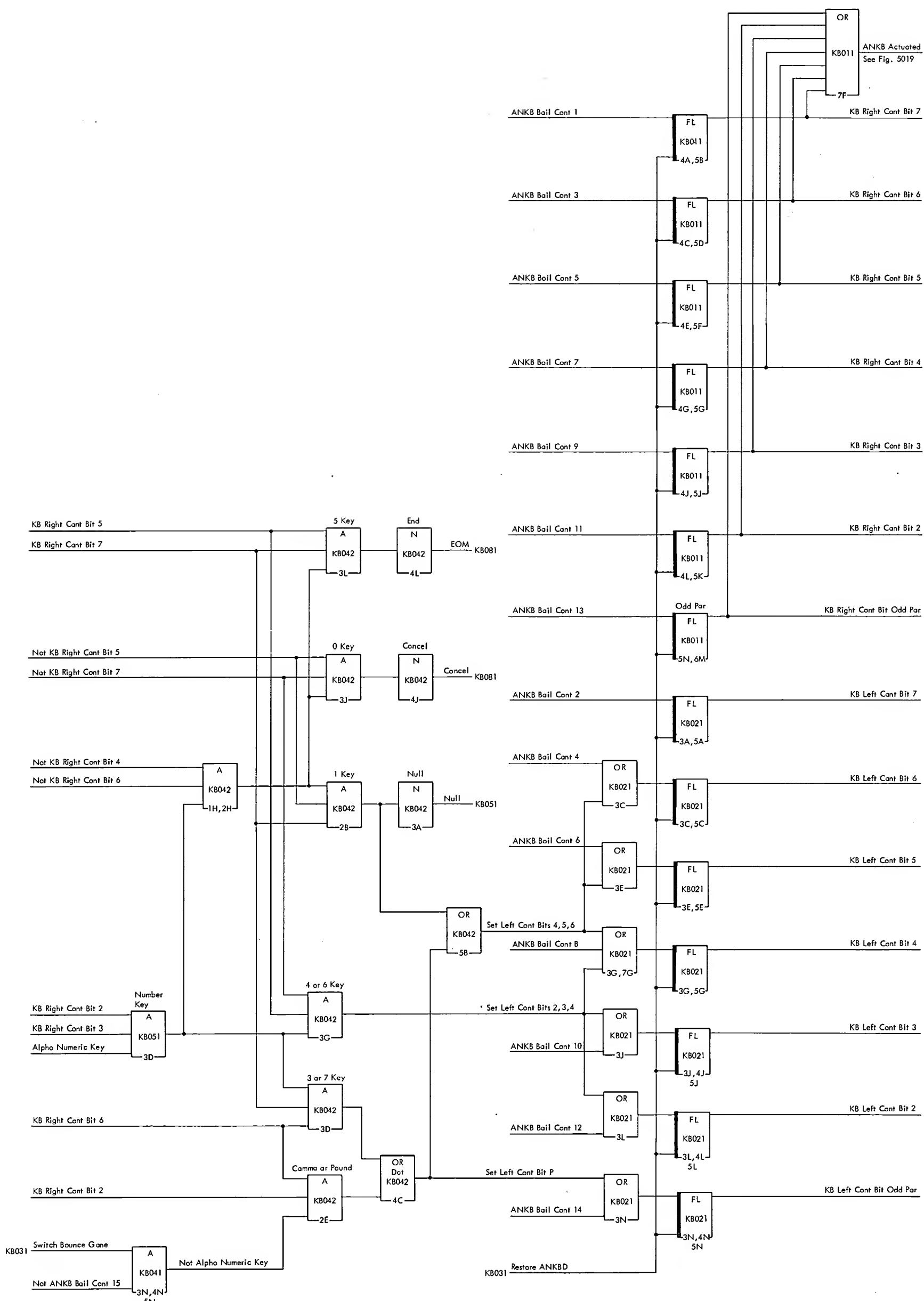


Figure 5018. A/N Keyboard Data Encoding Diagram

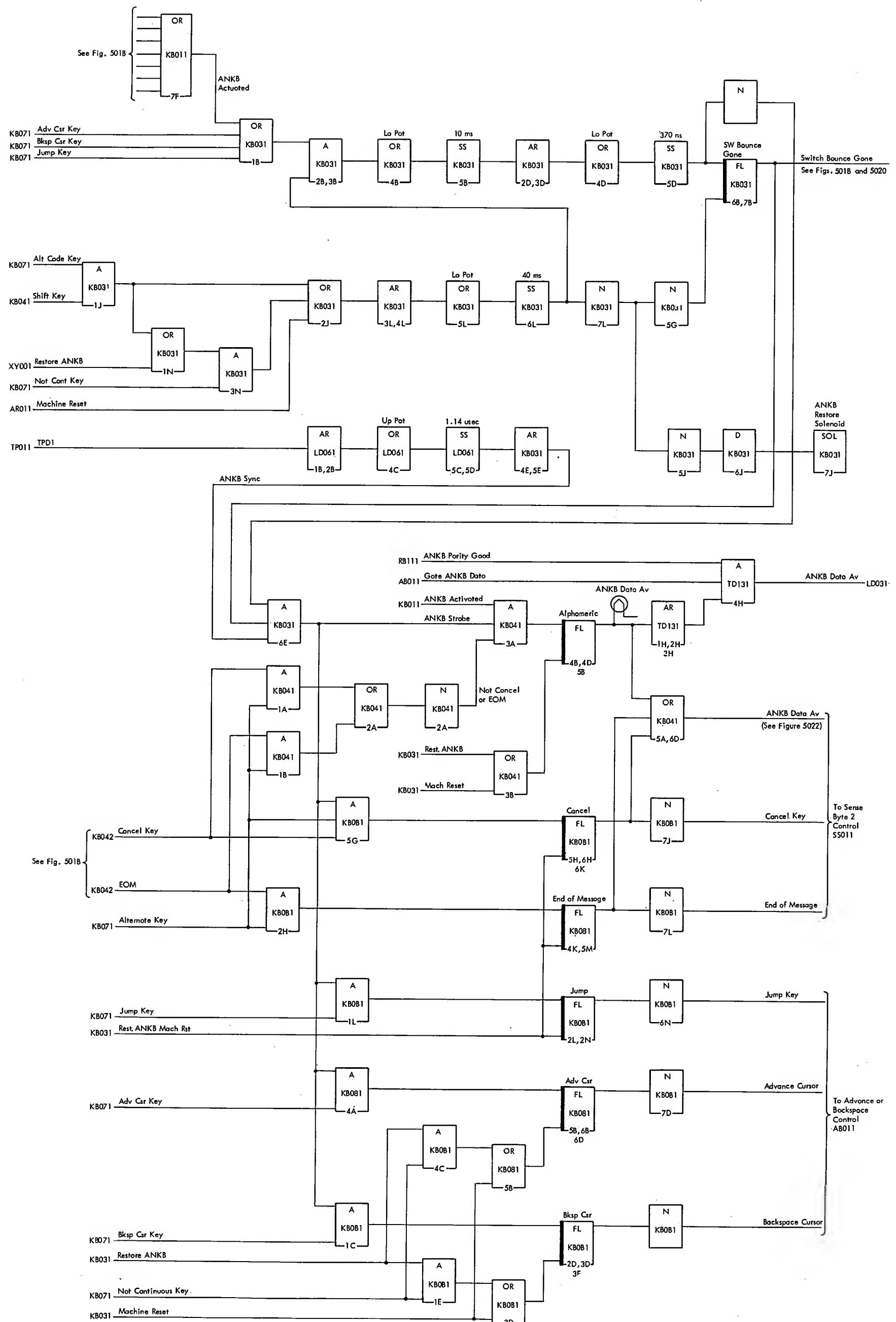
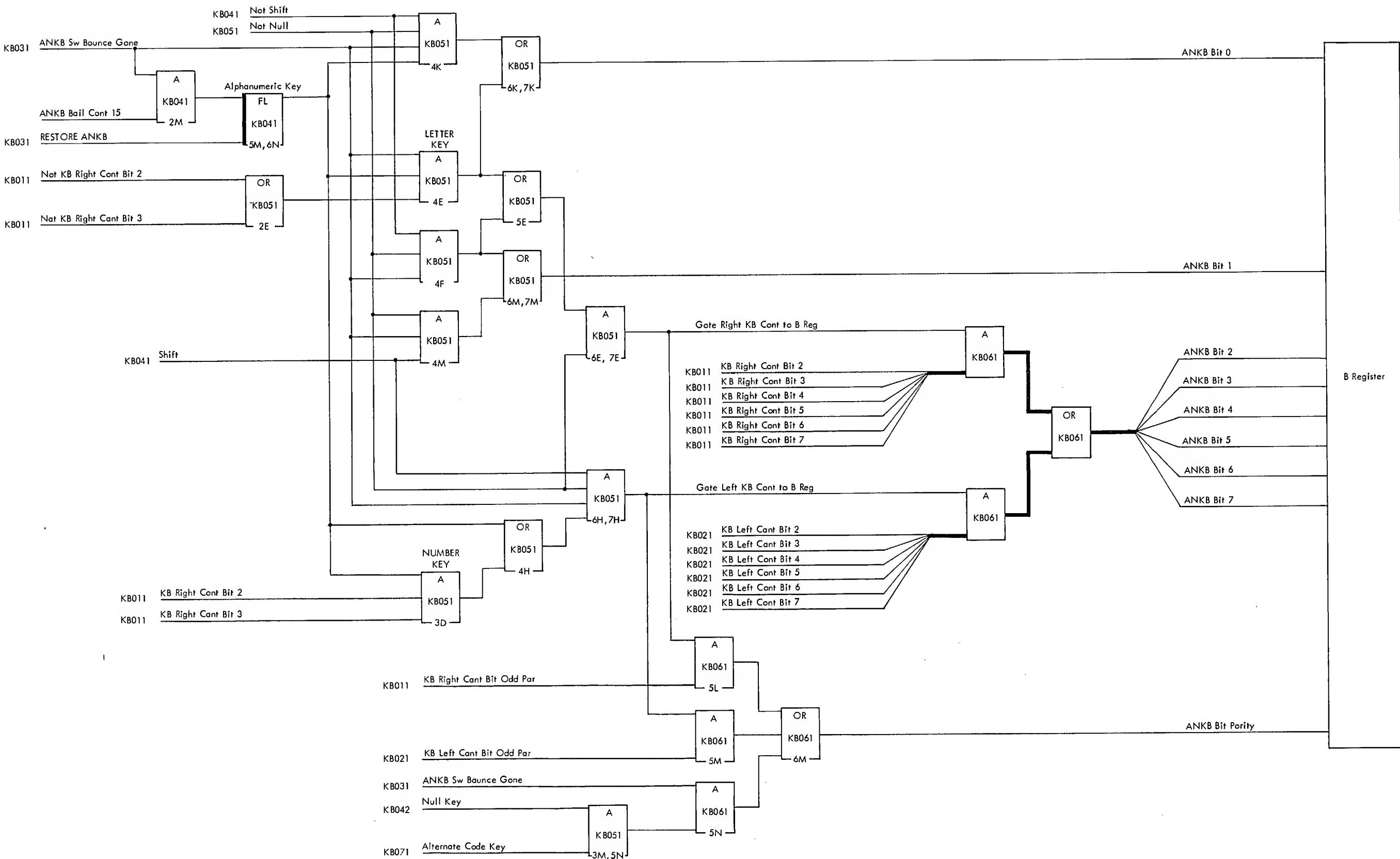


Figure 5019. A/N Keyboard Sense and Cursor Data Generation



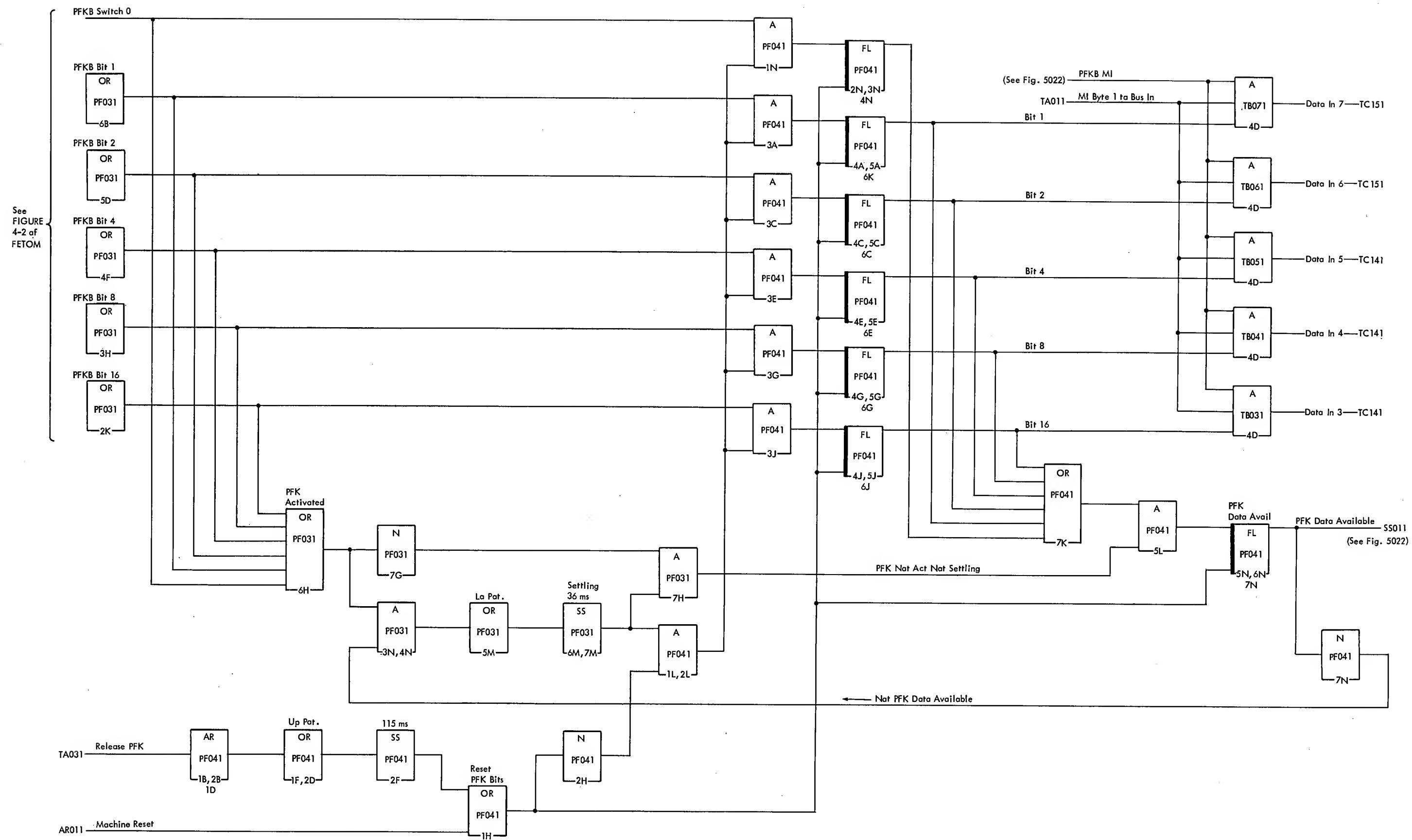


Figure 5021. Program Function Keyboard Data Encode and Entry

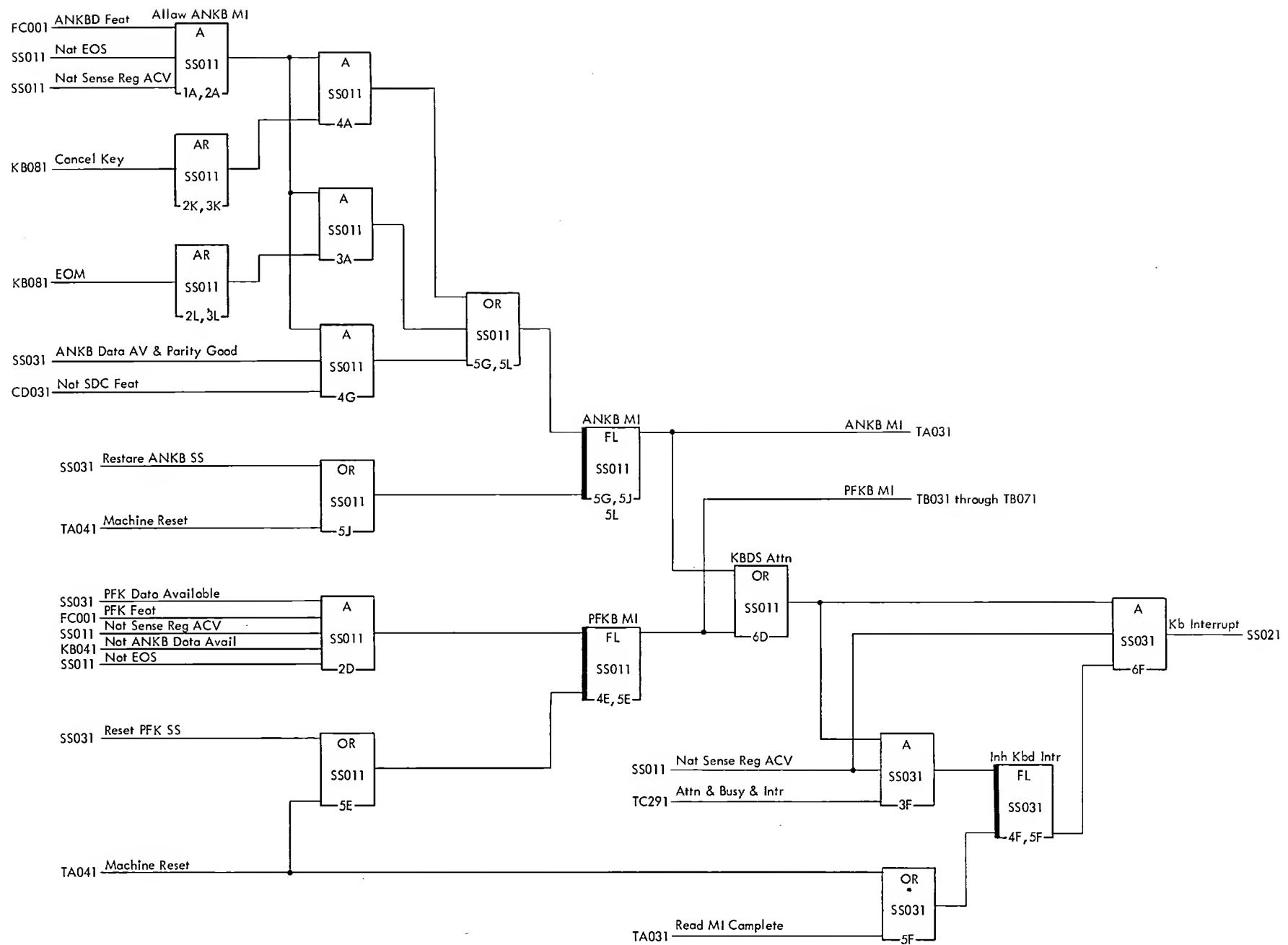


Figure 5022. A/N and PF Keyboards Interrupt

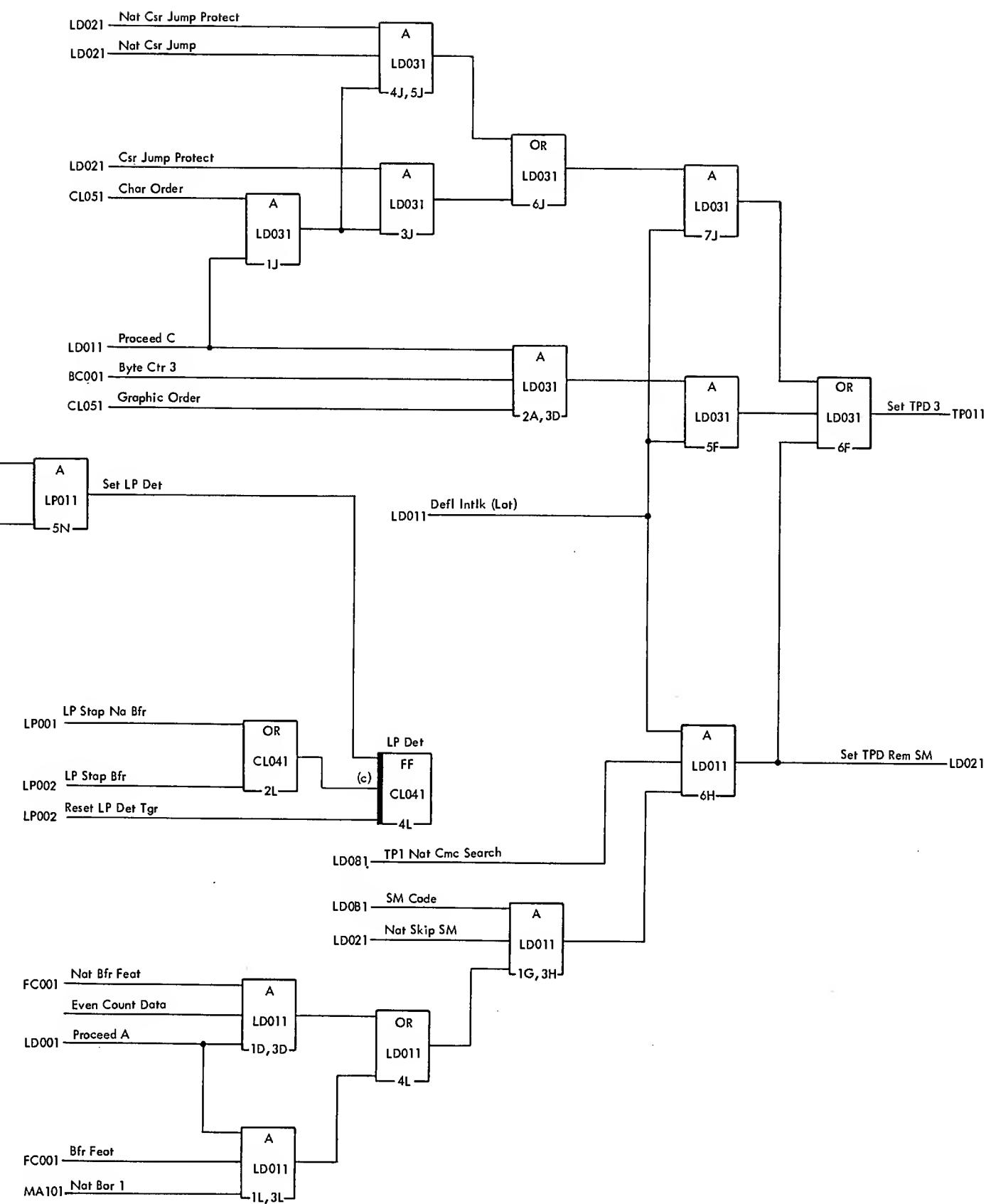
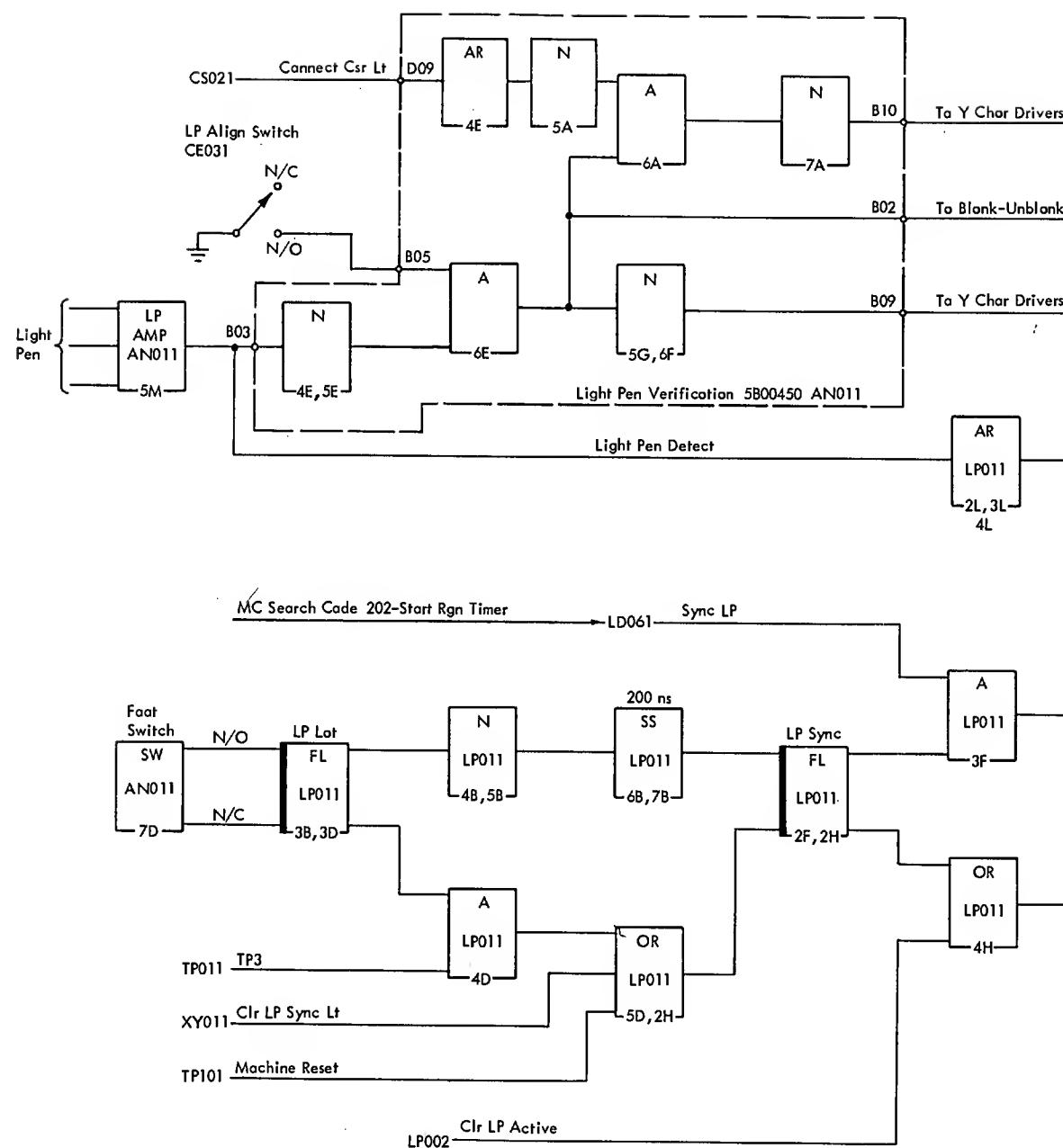


Figure 5023. Light Pen Deflection

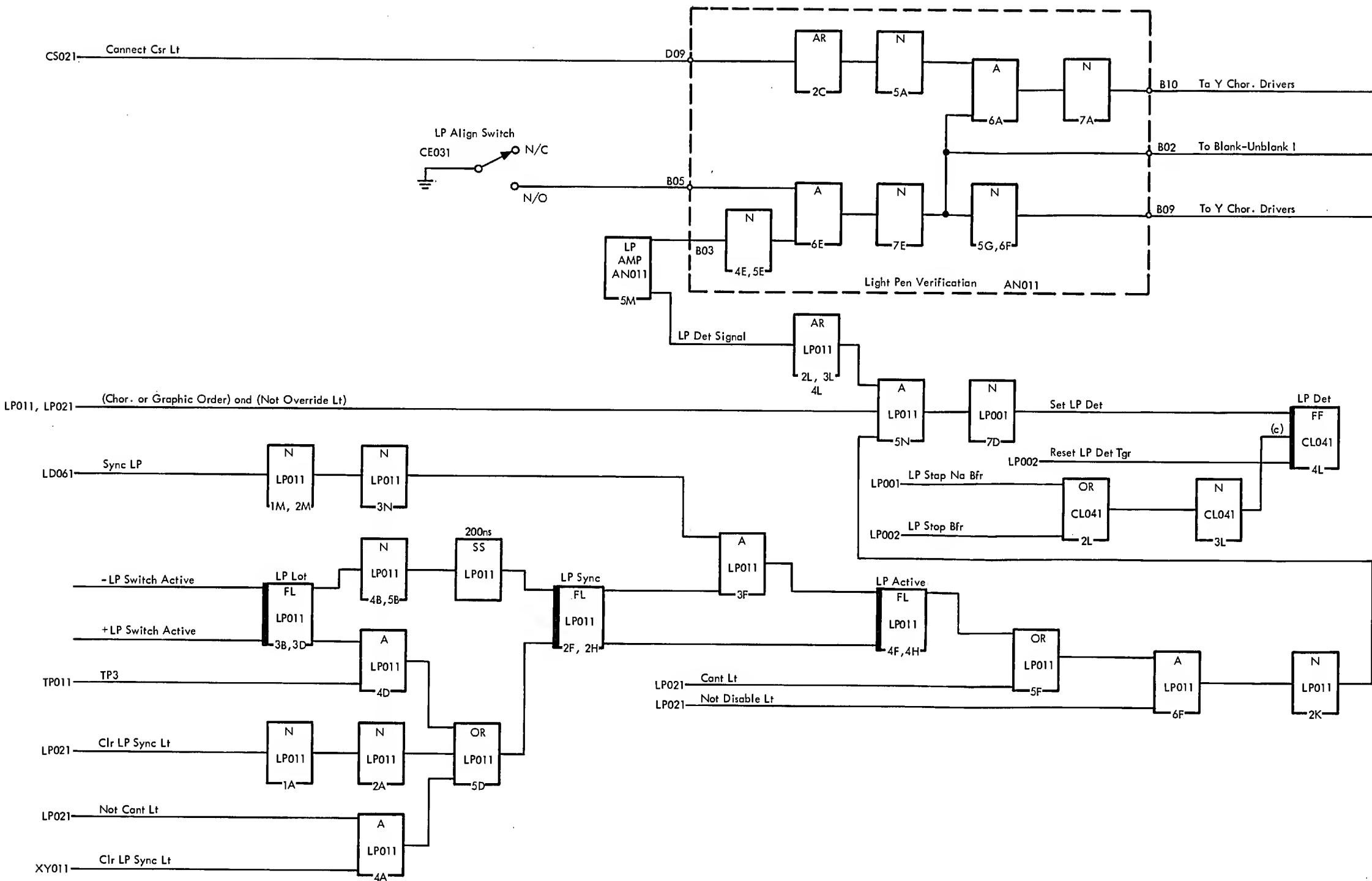


Figure 5023GDF. Light Pen Deflection (for GDF Machines)

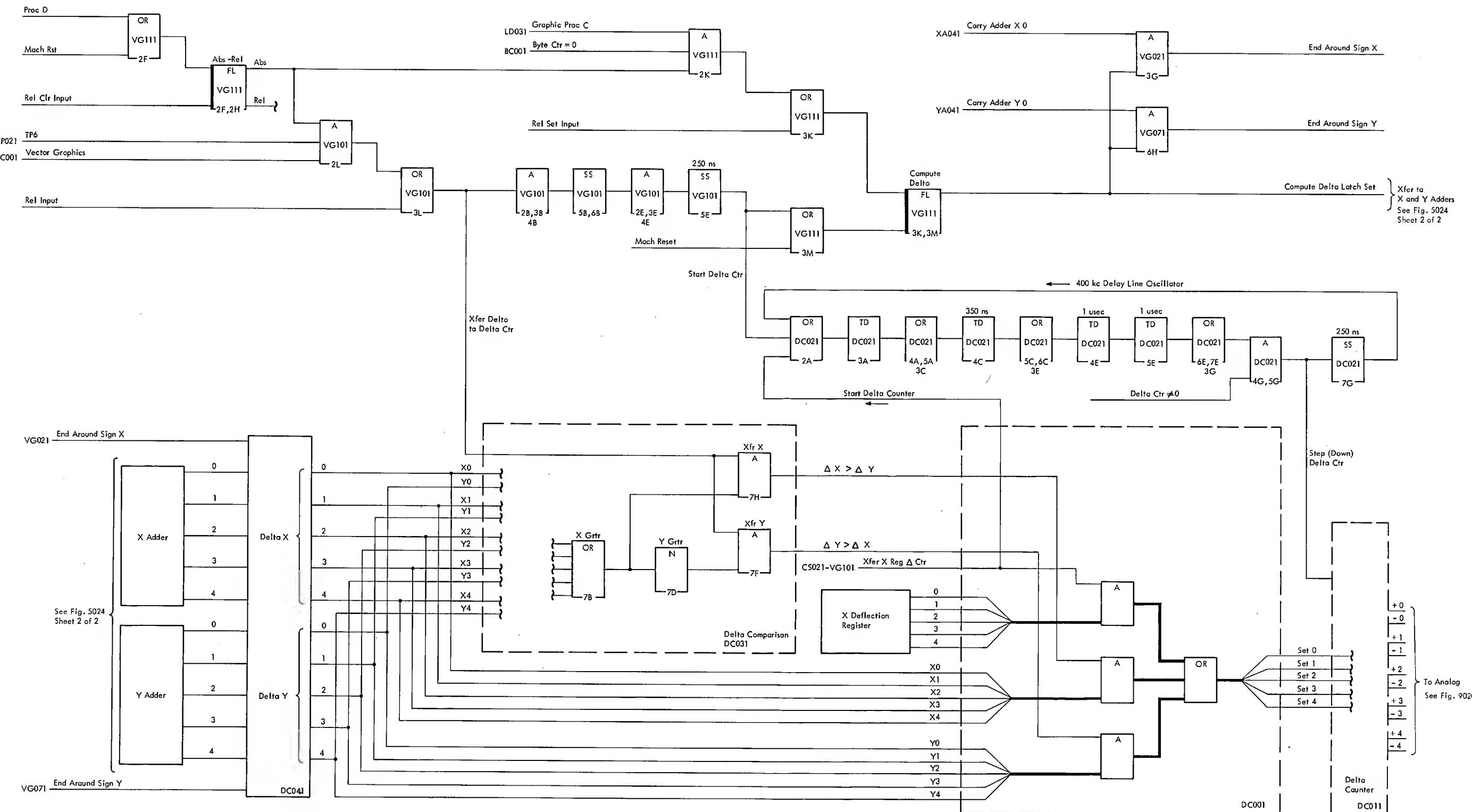


Figure 5024. Absolute Vector Graphics Control (Sheet 1 of 2)

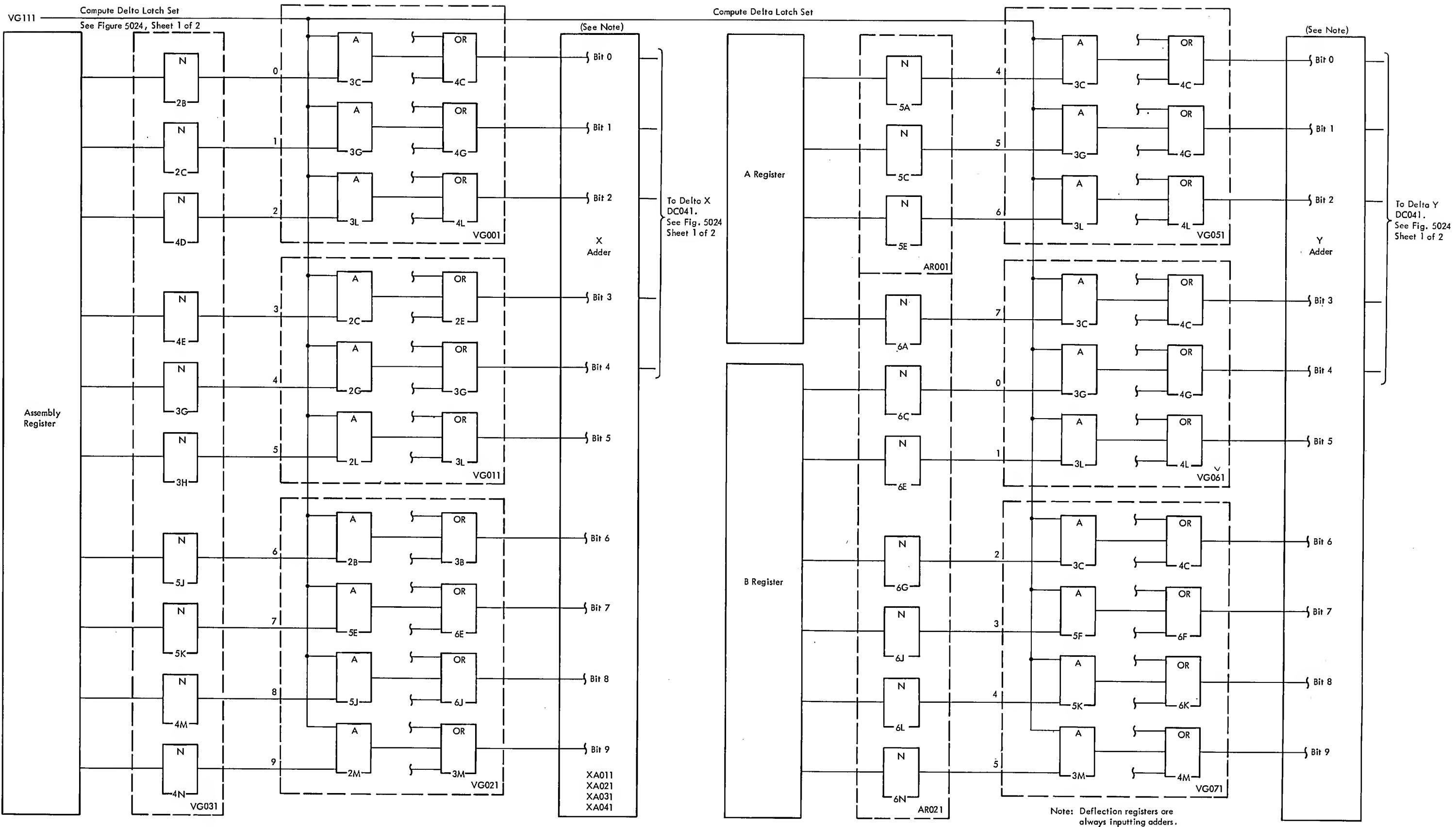


Figure 5024. Absolute Vector Graphics Control (Sheet 2 of 2)

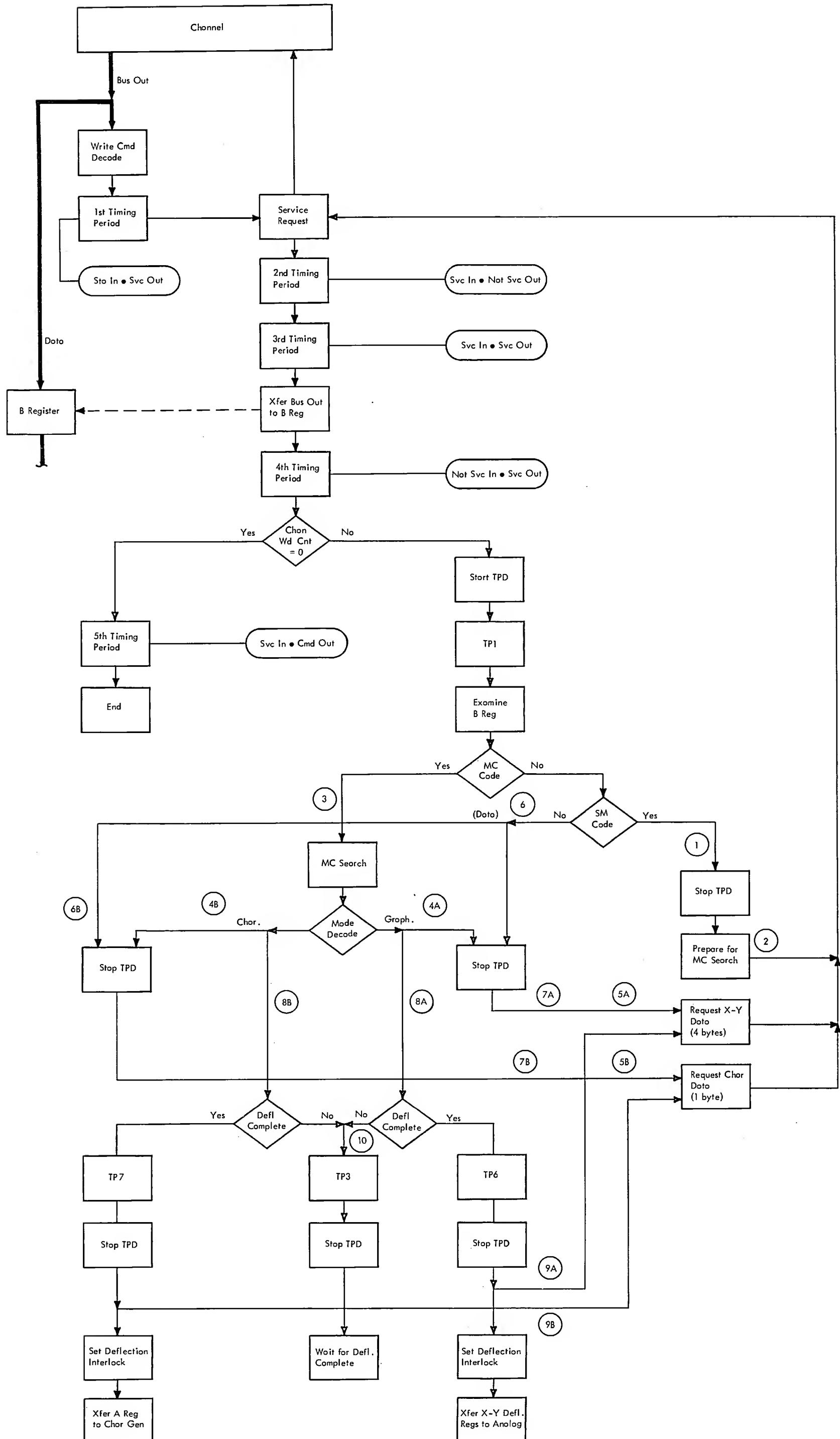


Figure 6000. Write Direct Command Process, Simplified Flow Chart

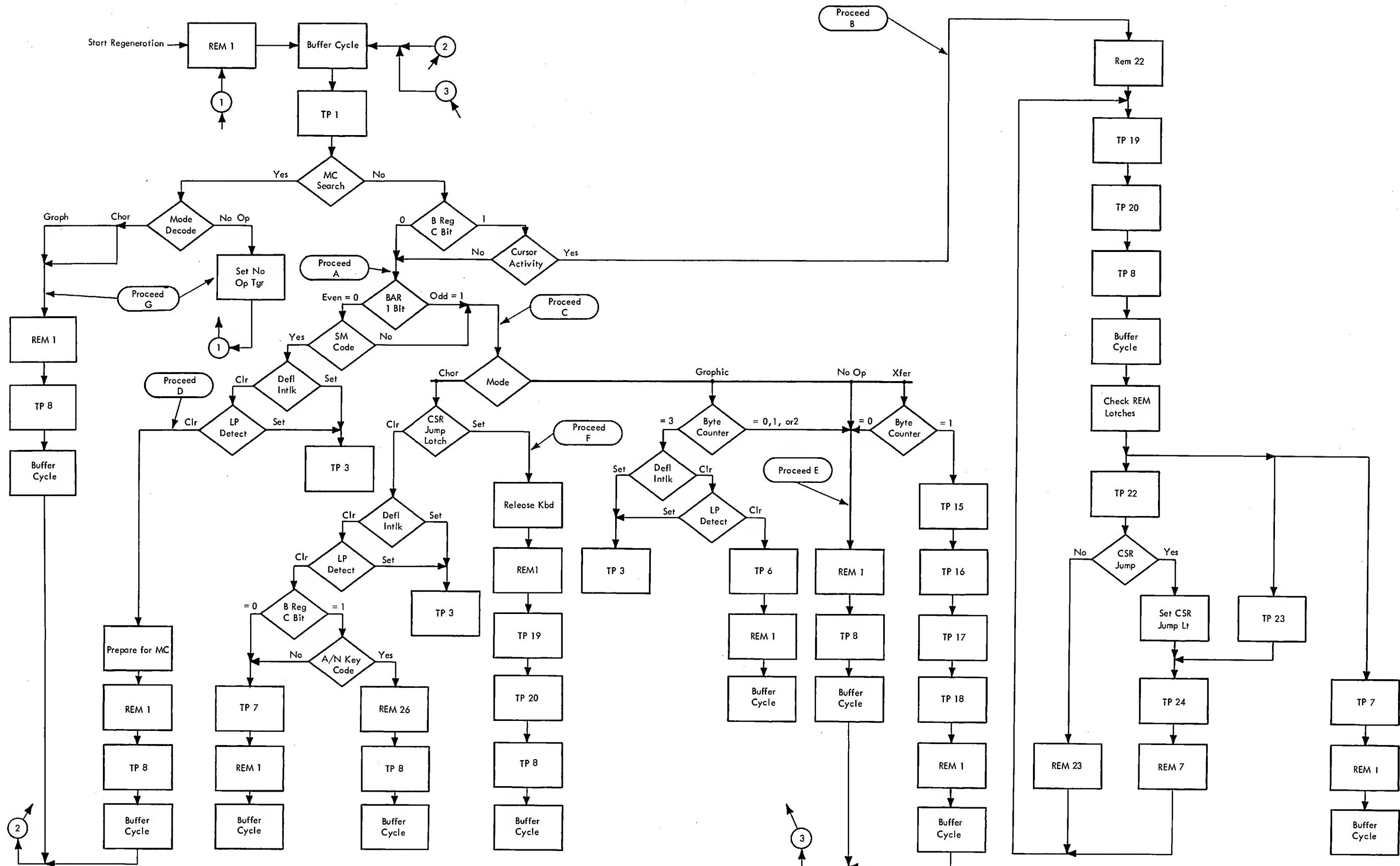


Figure 6001. Buffer Regeneration Timing Sequence, Simplified Flow Chart

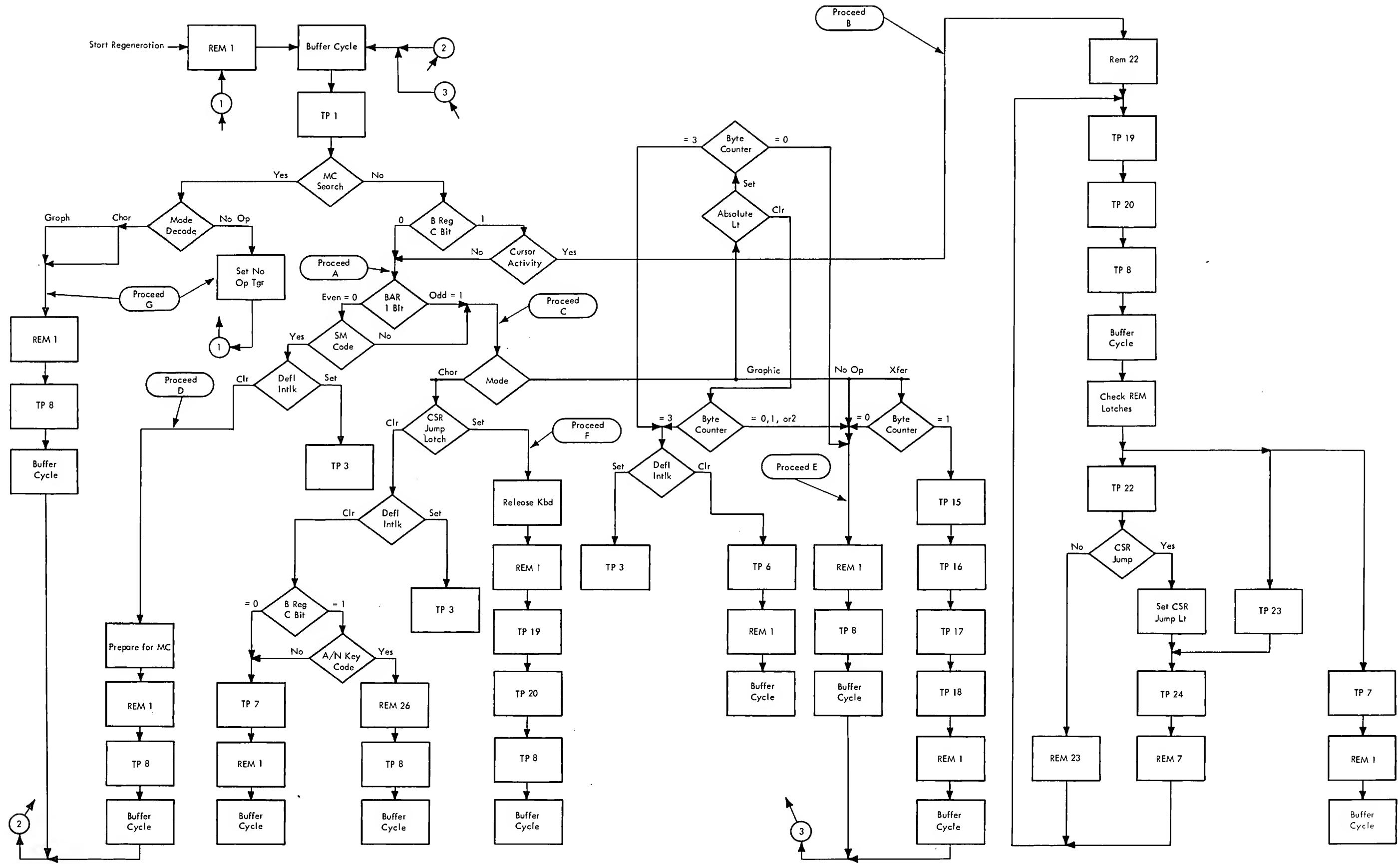


Figure 6001GDF. Buffer Regeneration Timing Sequence, Simplified Flow Chart (for GDF Machines)

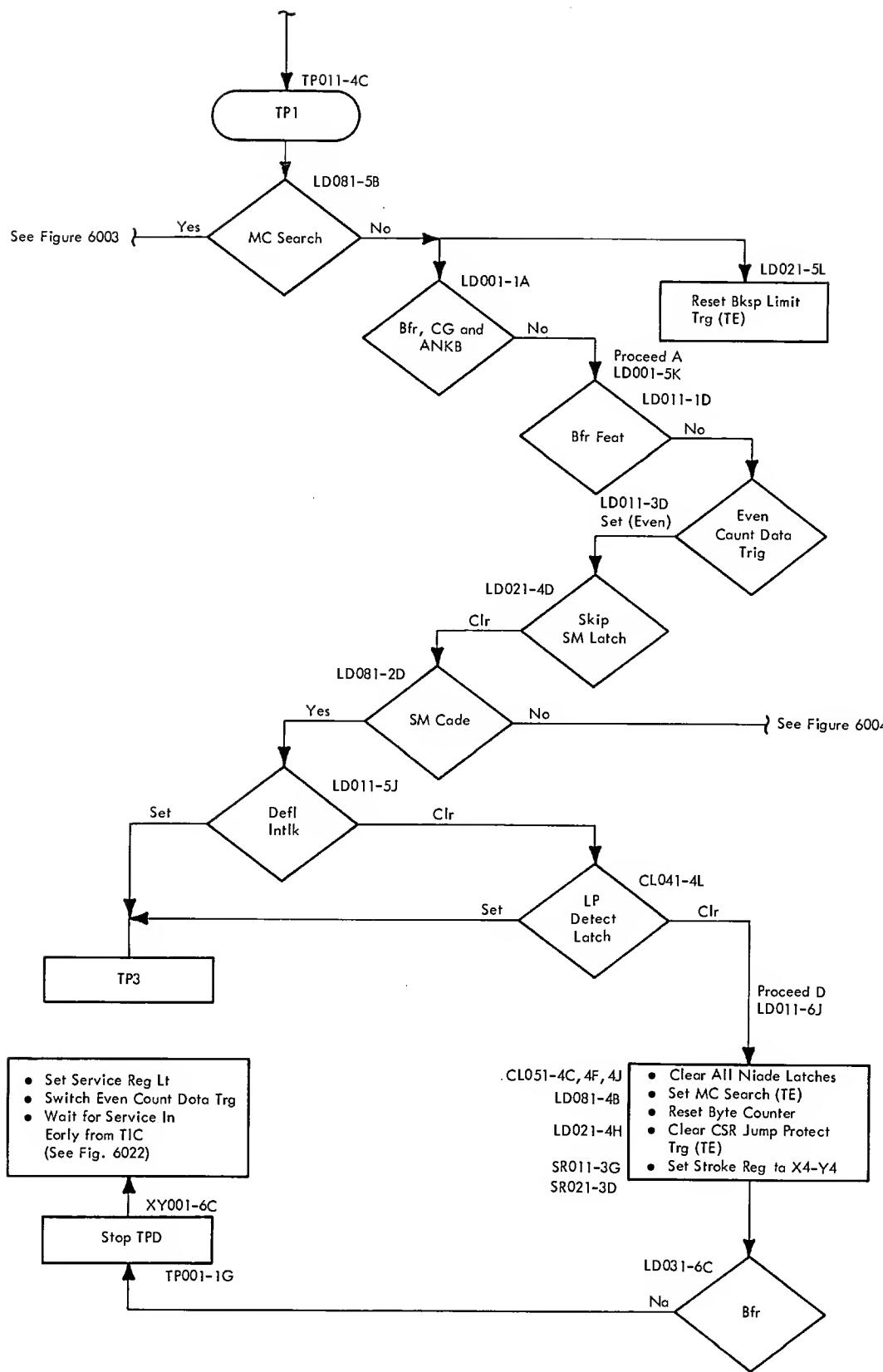


Figure 6002. SM Search-Write, No Buffer, Flow Chart

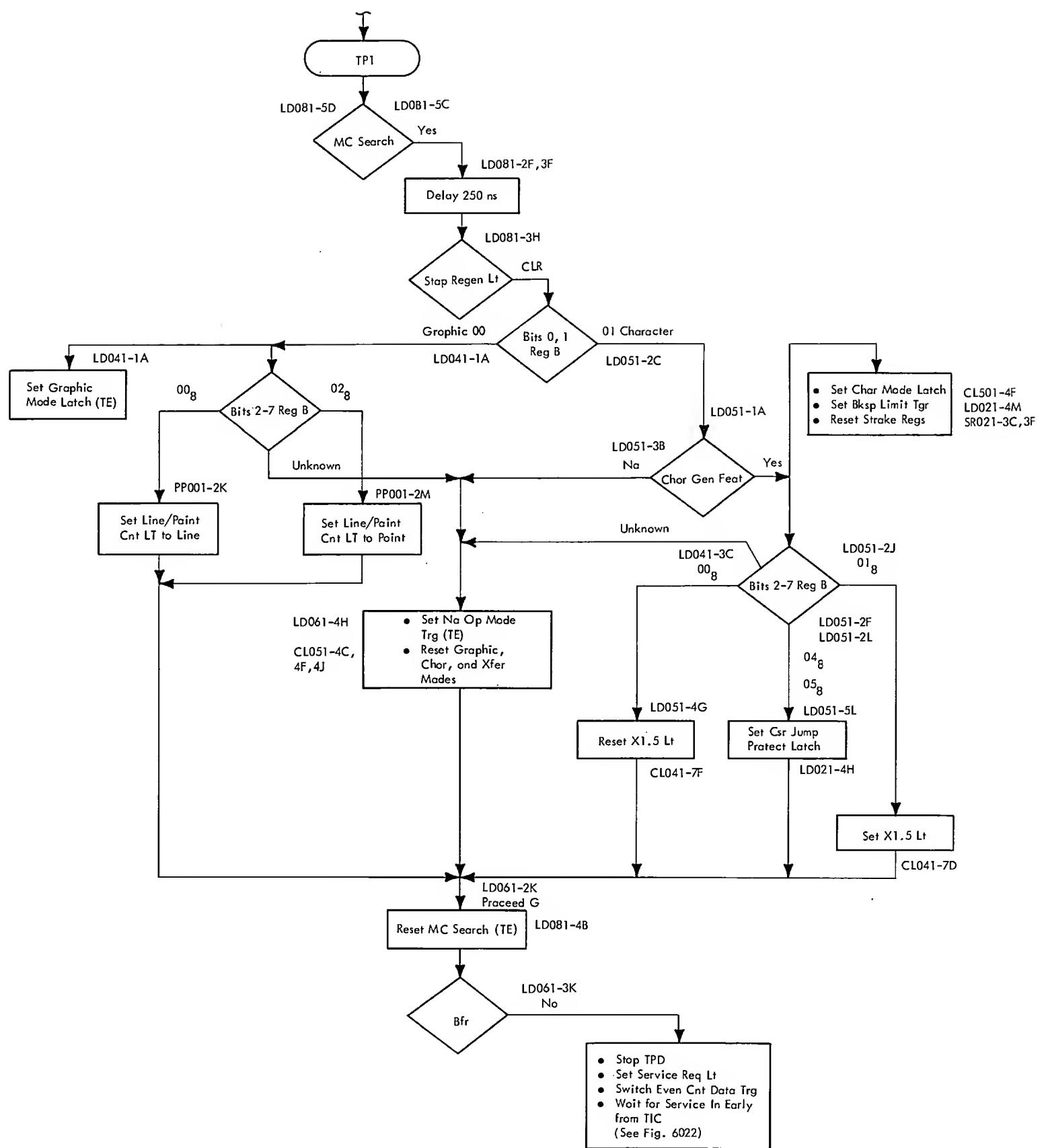


Figure 6003. MC Search-Write, No Buffer, Flow Chart

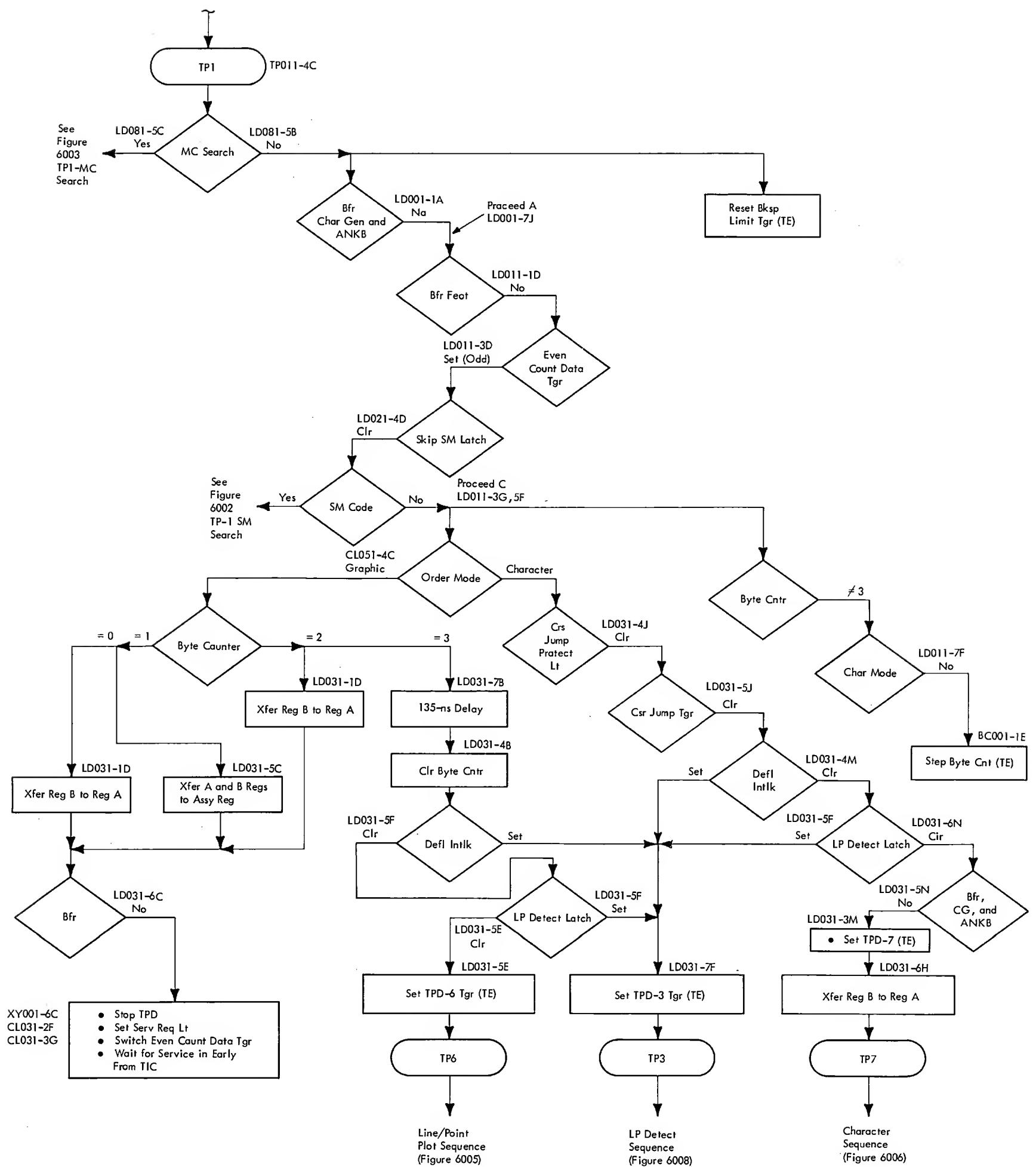


Figure 6004. Mode Sequence - Graphic or Character No Buffer, Flow Chart

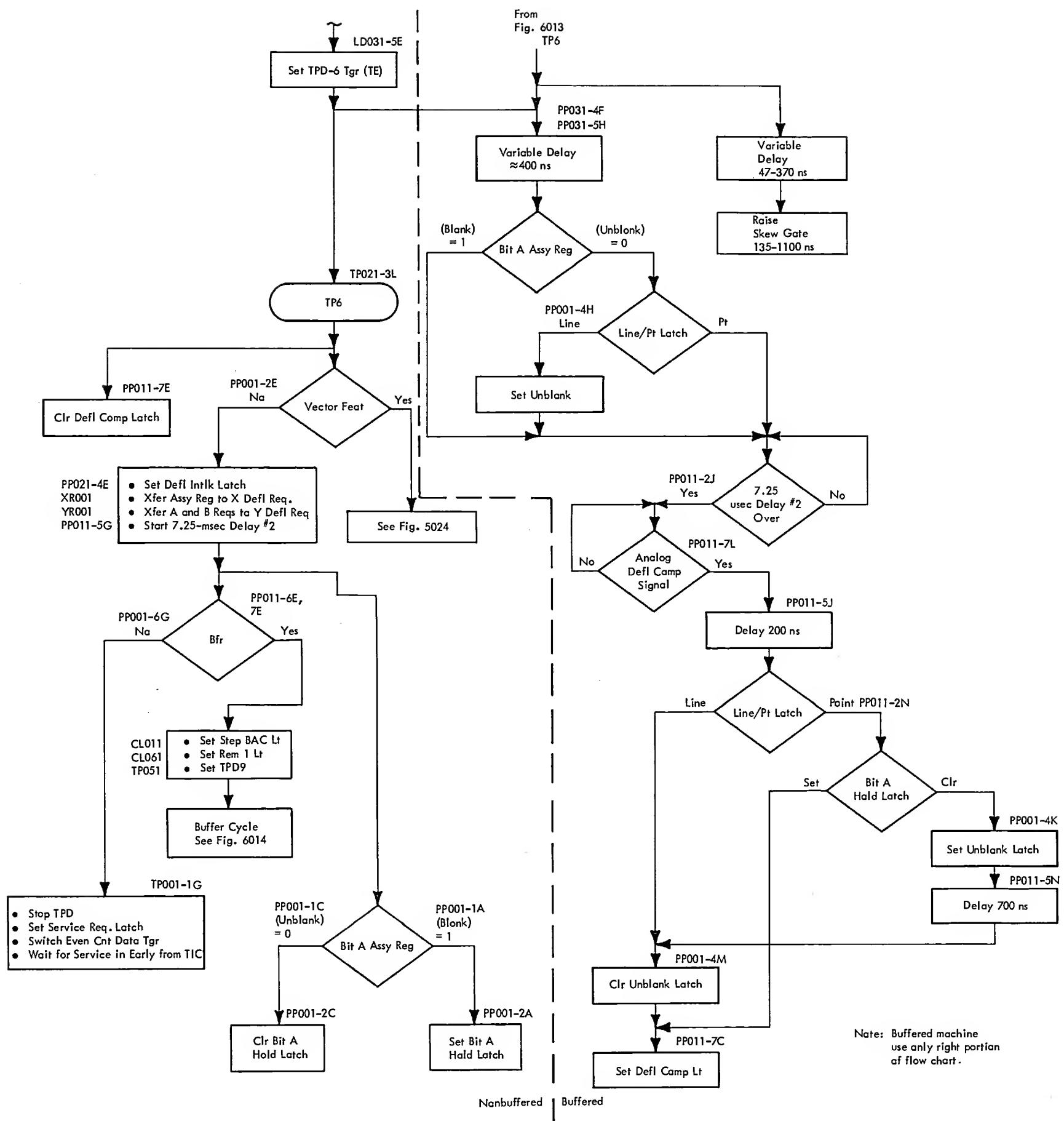


Figure 6005. Line/Point Sequence, Flow Chart

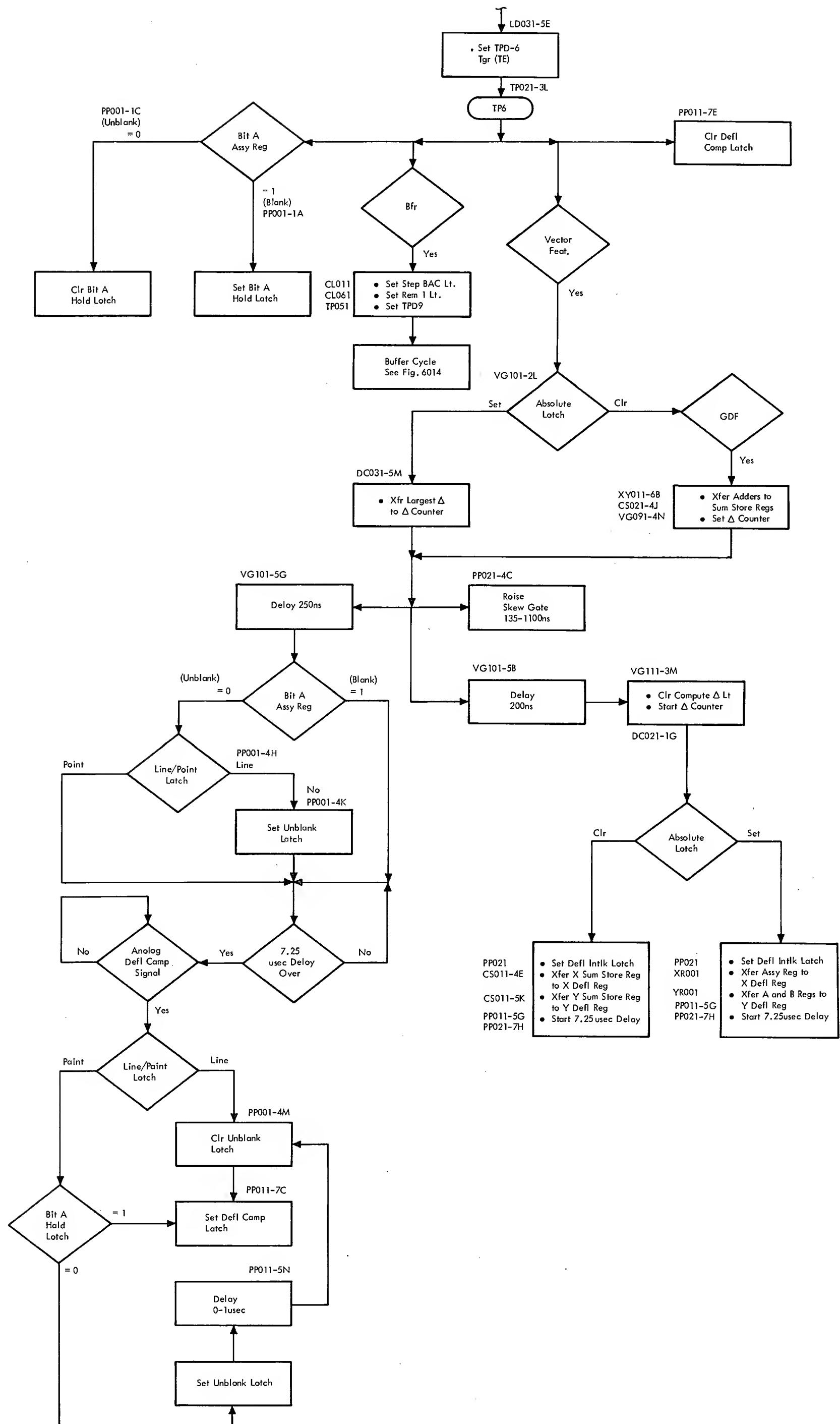


Figure 6005GDF. Line/Point Sequence, Flow Chart (for GDF Machines)

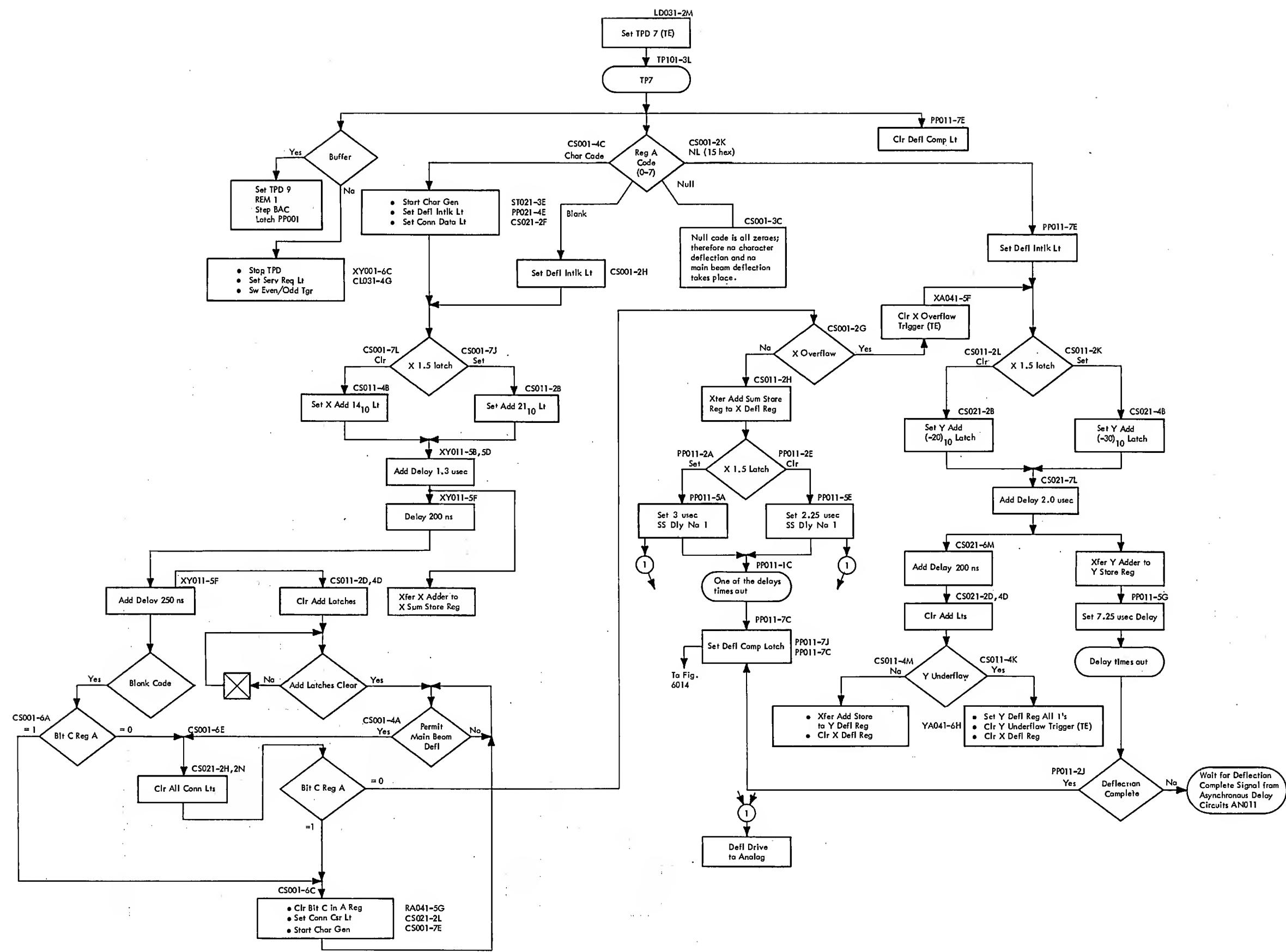
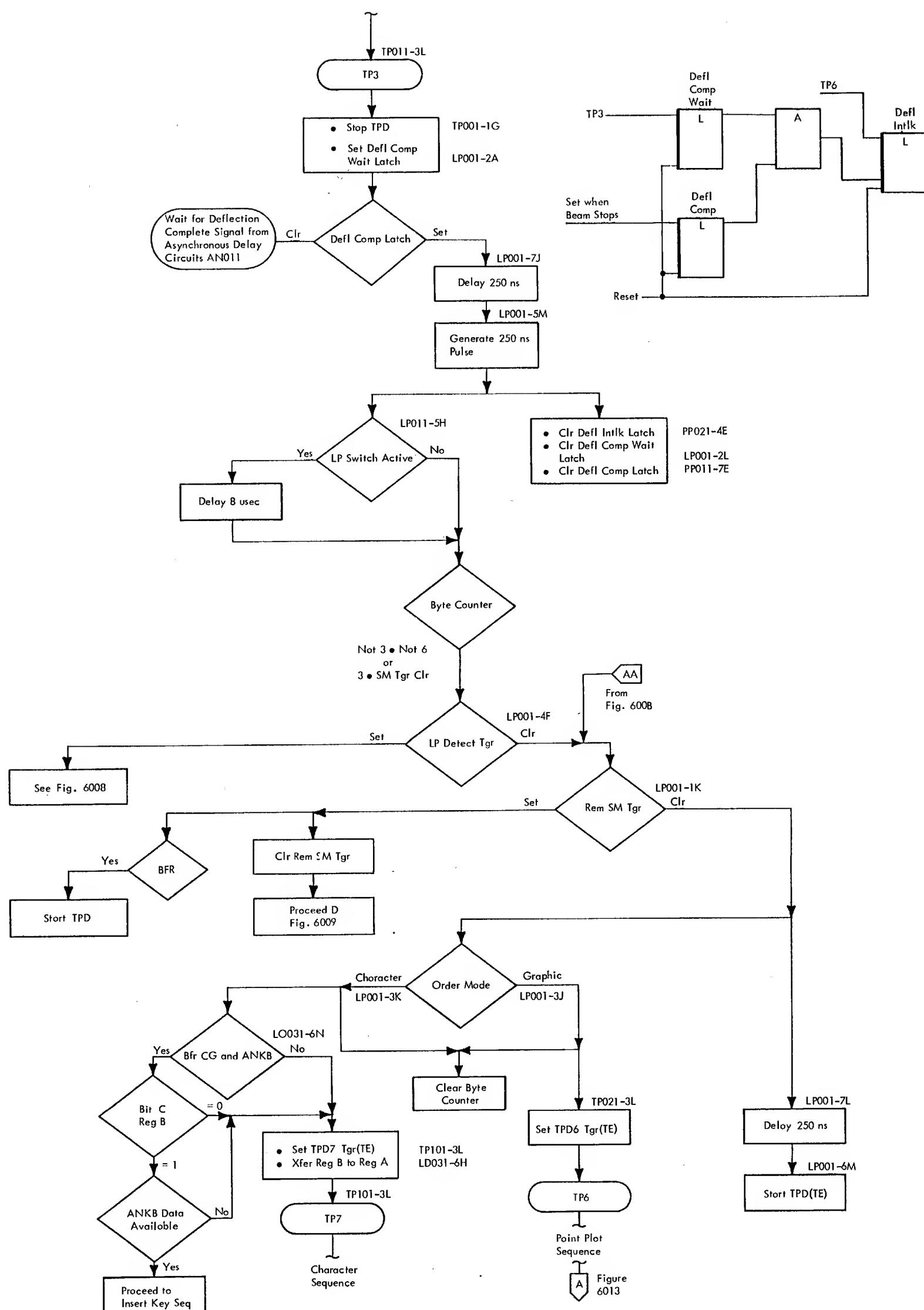


Figure 6006. Character Sequence, Flow Chart



•Figure 6007. Deflection Interlock Wait (No LP Detect) Flow Chart

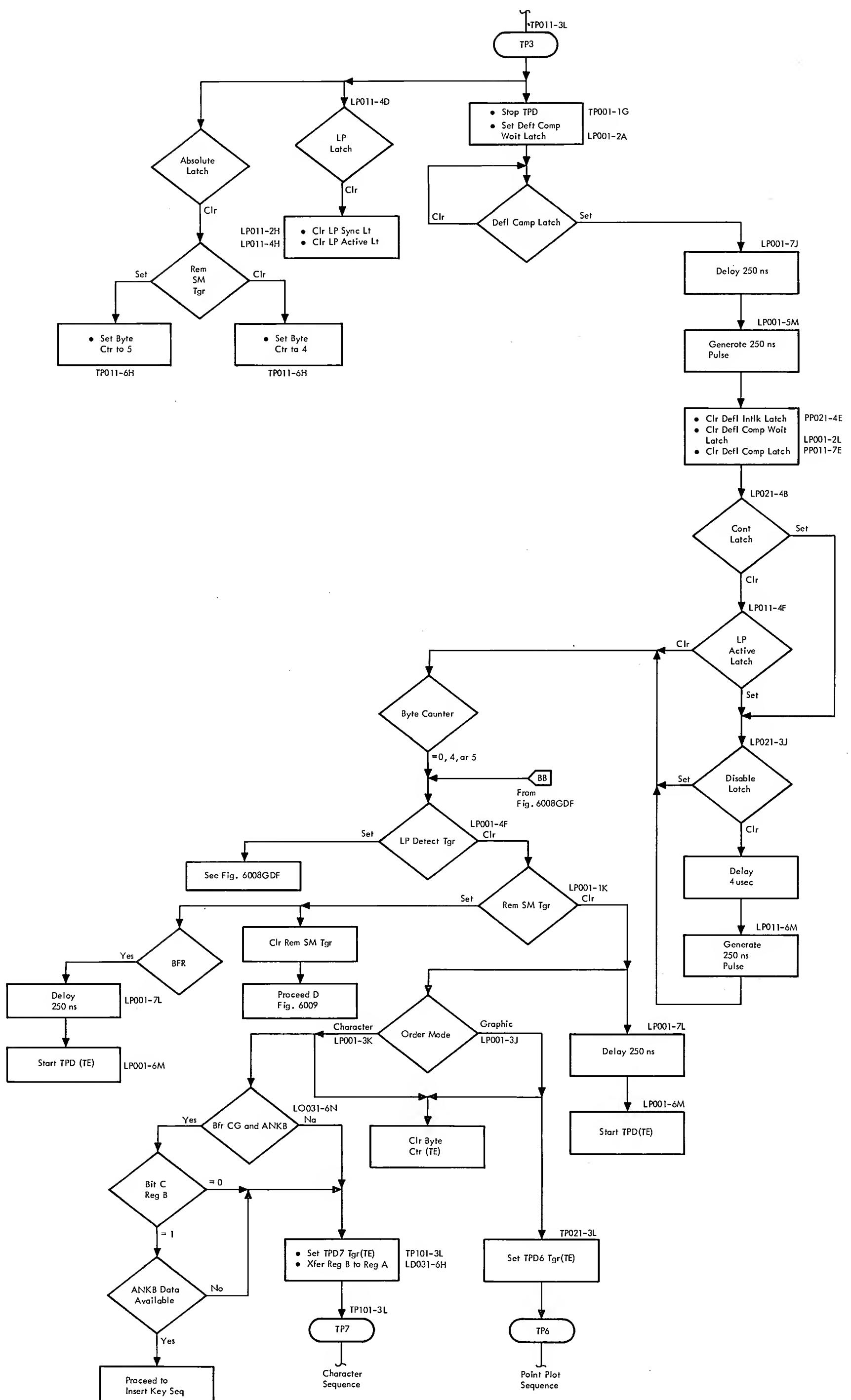


Figure 6007GDF. Deflection Interlock Wait (No LP Detect) Flow Chart (for GDF Machines)

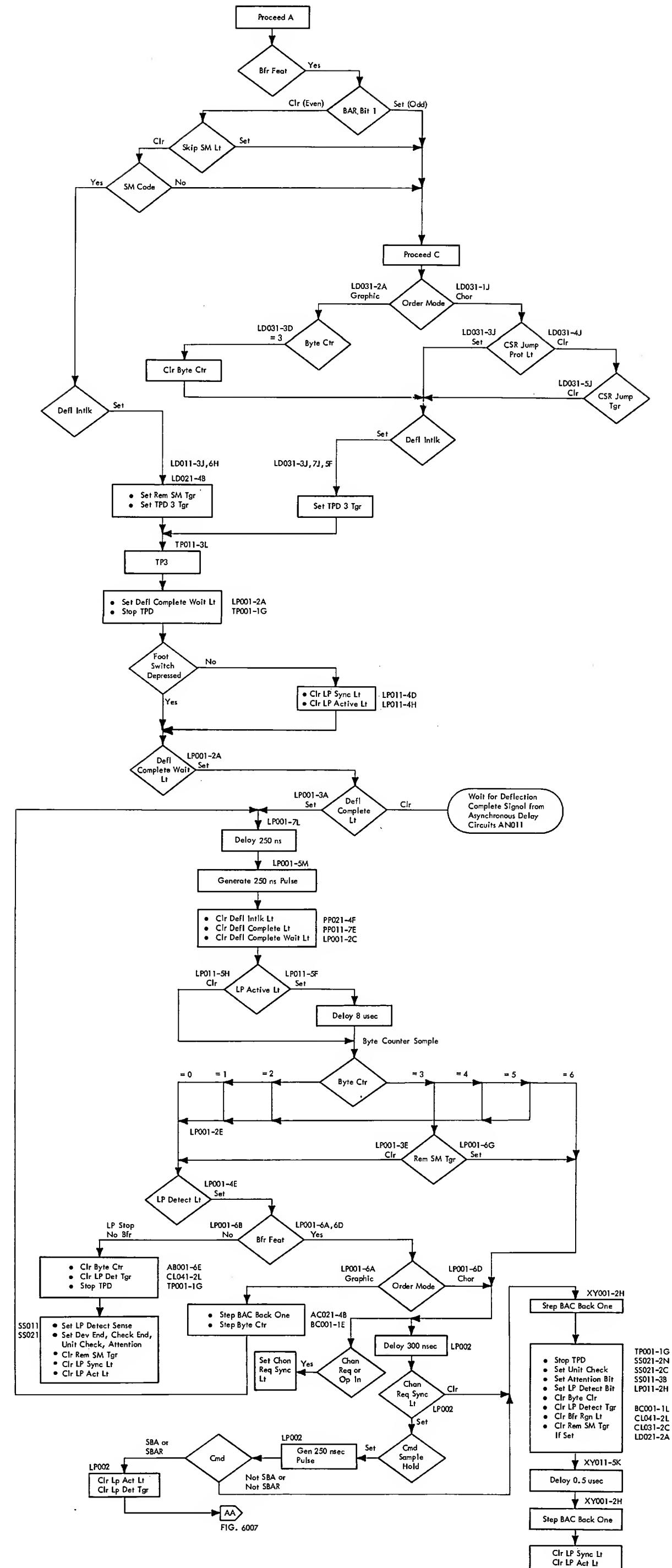


Figure 6008. Light Pen Detection Process, Flow Chart

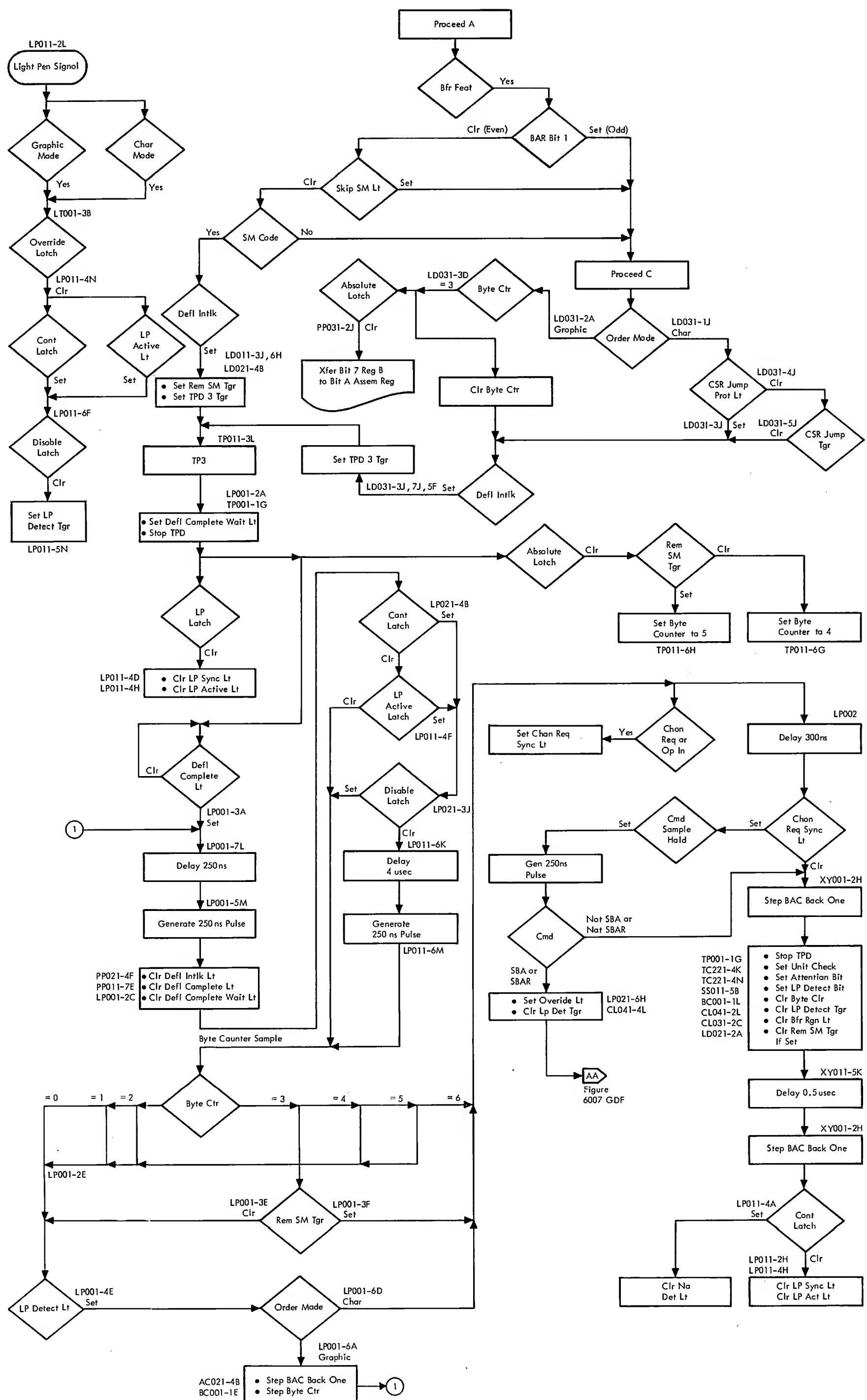
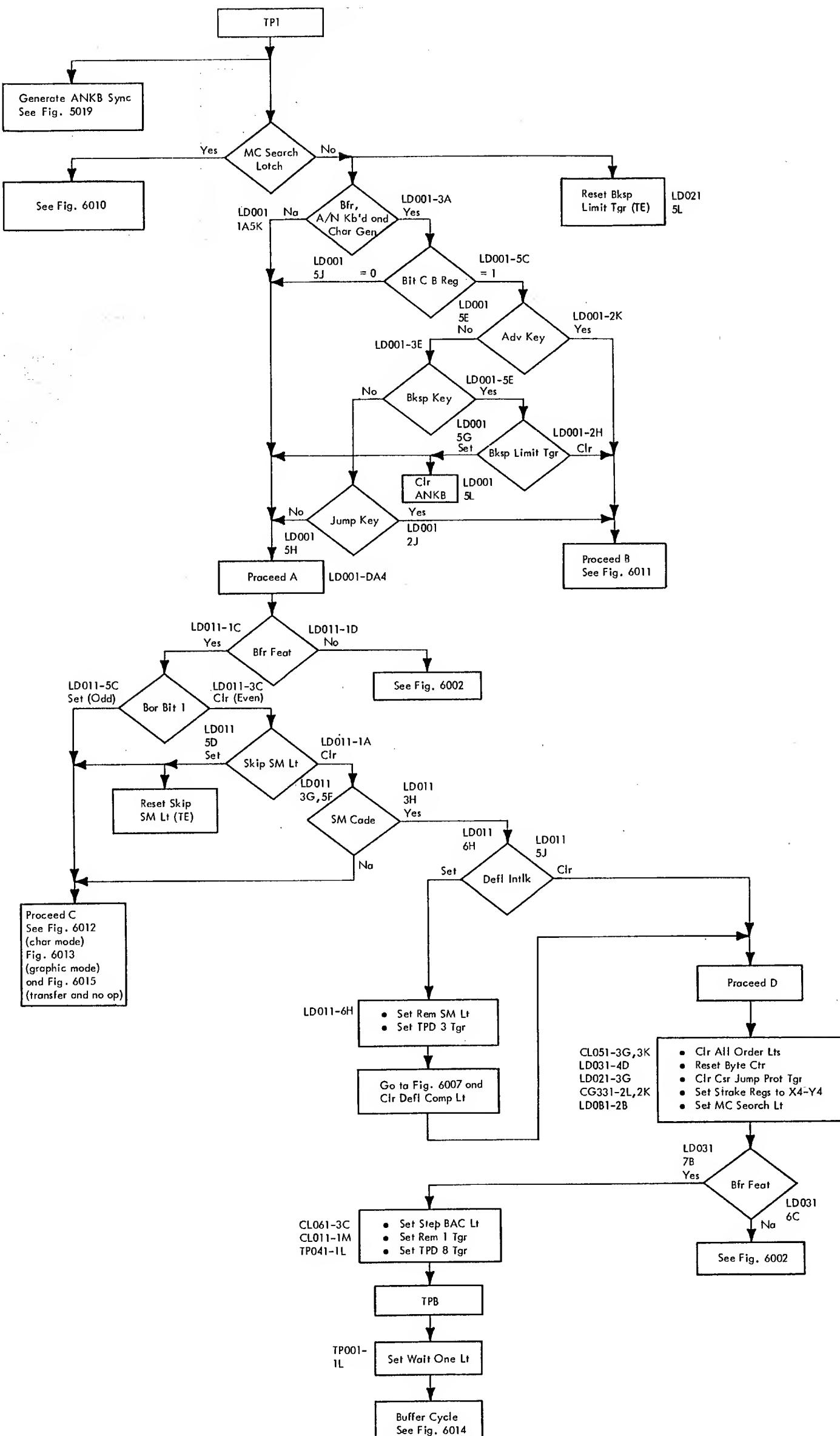


Figure 6008GDF. Light Pen Detection Process, Flow Chart (for GDF Machines)



•Figure 6009. Buffer Regeneration, Proceed A and Proceed D, SM Search, Flow Chart

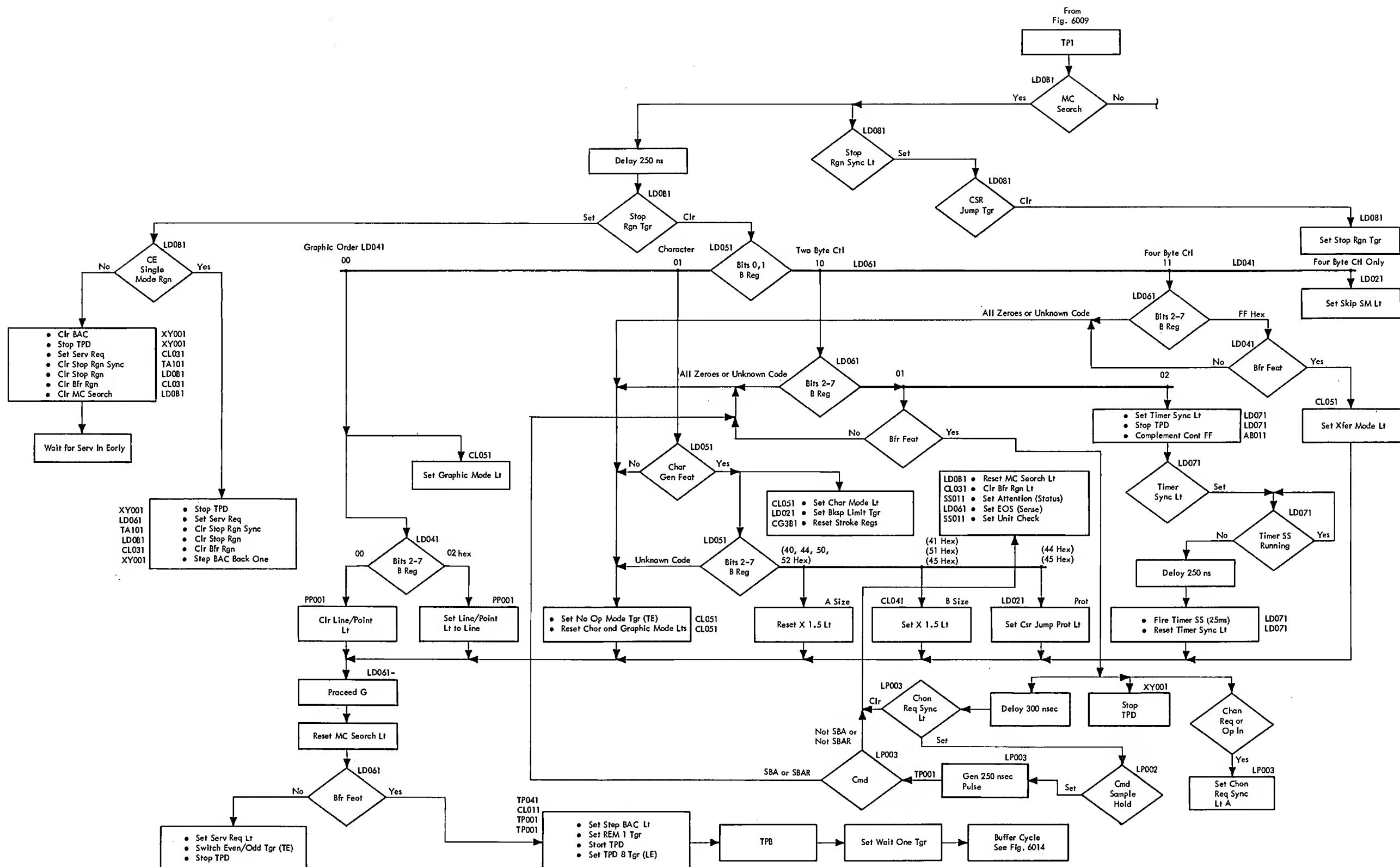


Figure 6010. Buffer Regeneration, MC Search and Proceed G, Flow Char

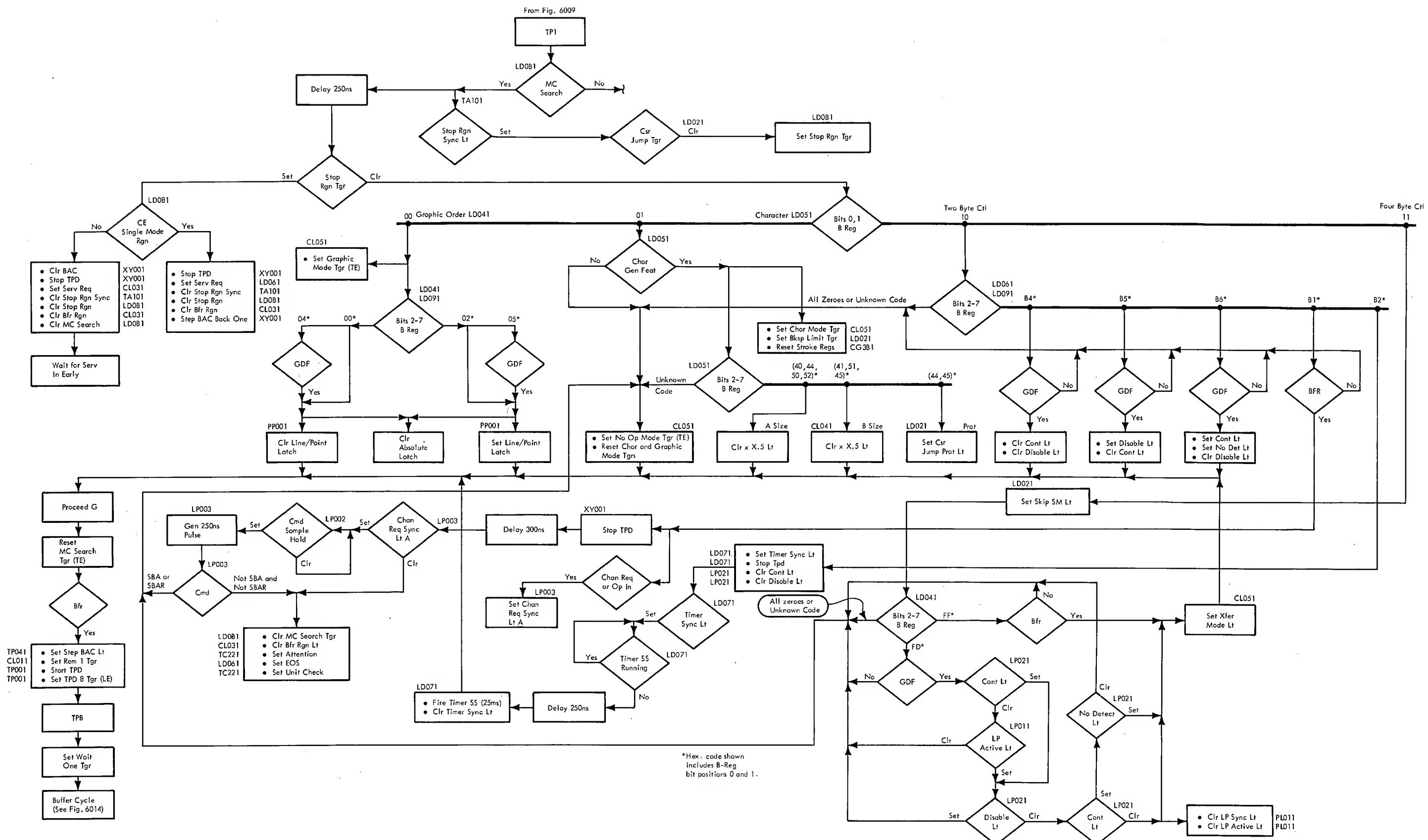


Figure 6010GDF. Buffer Regeneration, MC Search and Proceed G, Flow Chart (for GDF Machines)

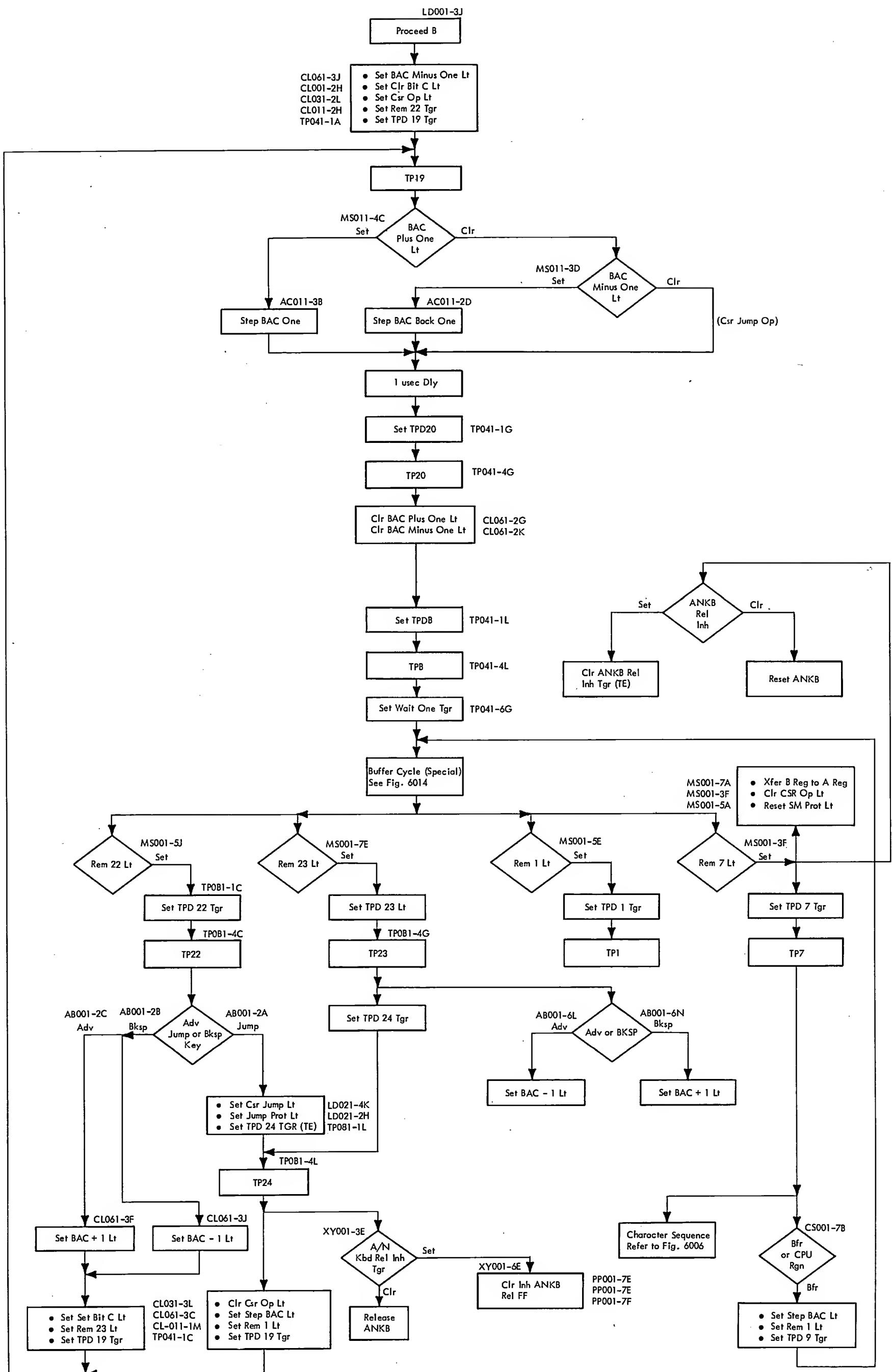


Figure 6011. Buffer Regeneration, Proceed B, Cursor Adjustment Process, Flow Chart

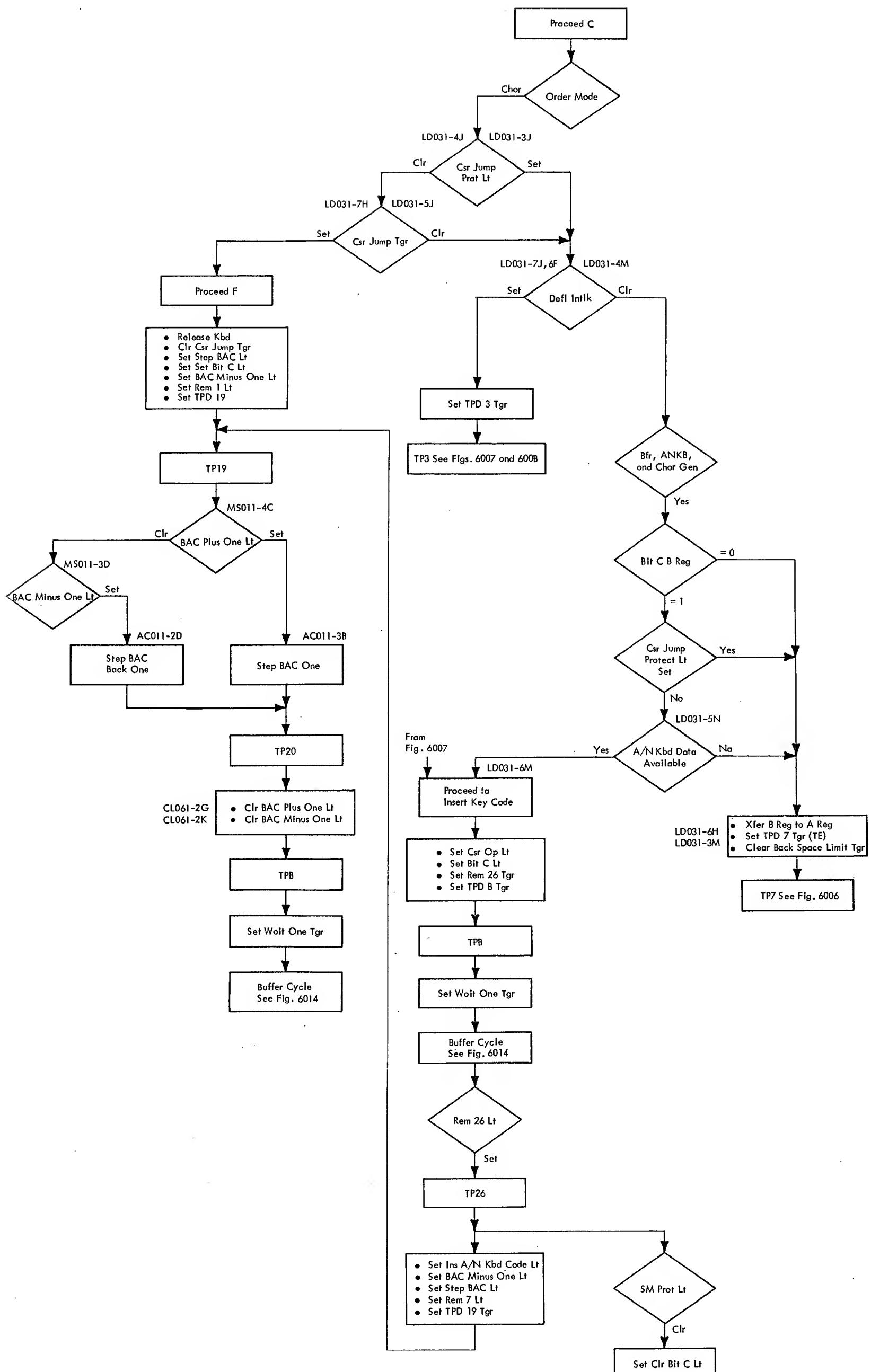
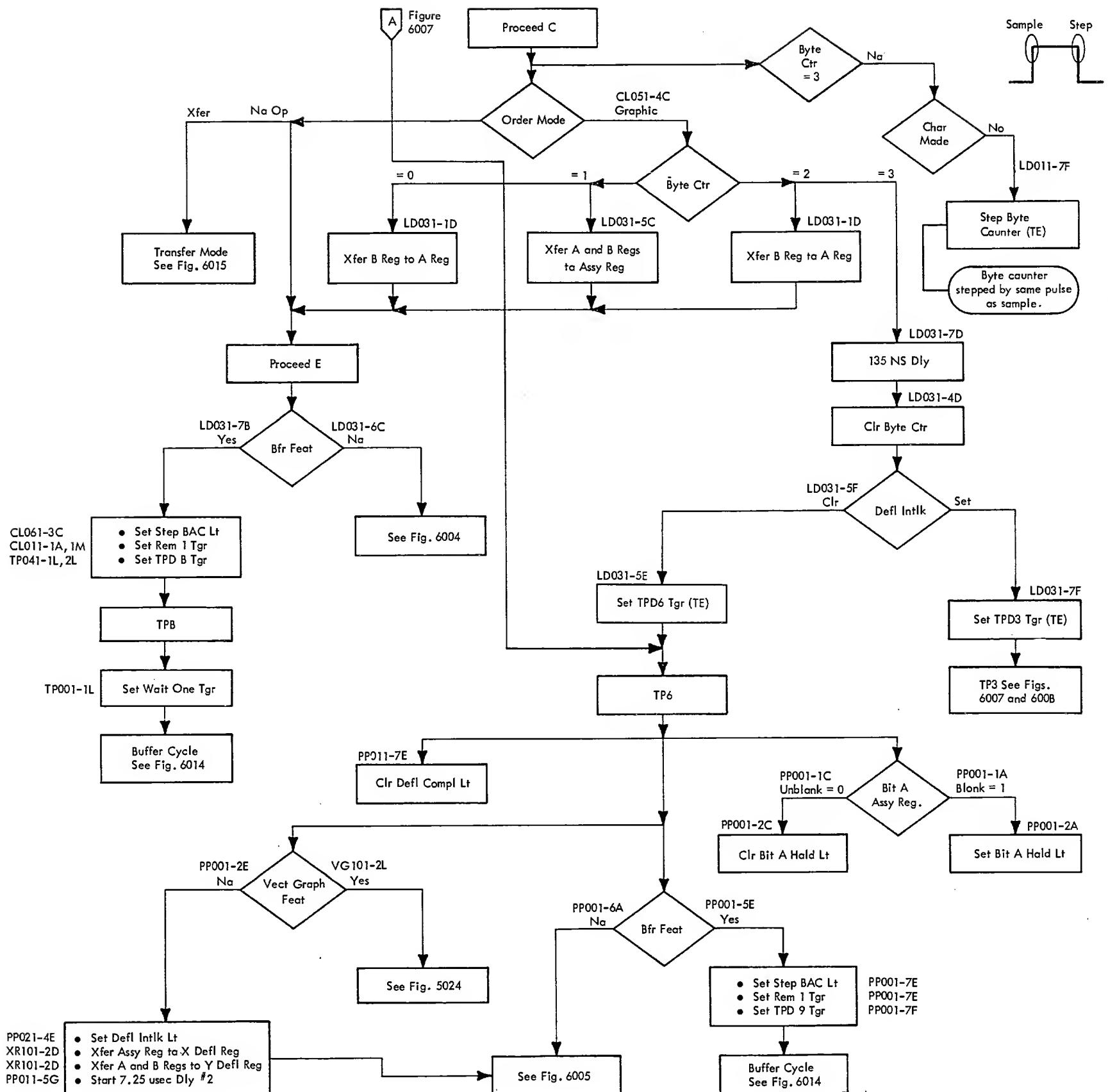


Figure 6012 Buffer Regeneration. Proceed C and Proceed F. Character Mode, Flow Chart



•Figure 6013. Buffer Regeneration, Proceed C and Proceed E, Graphic, Transfer and No Op Modes, Flow Chart

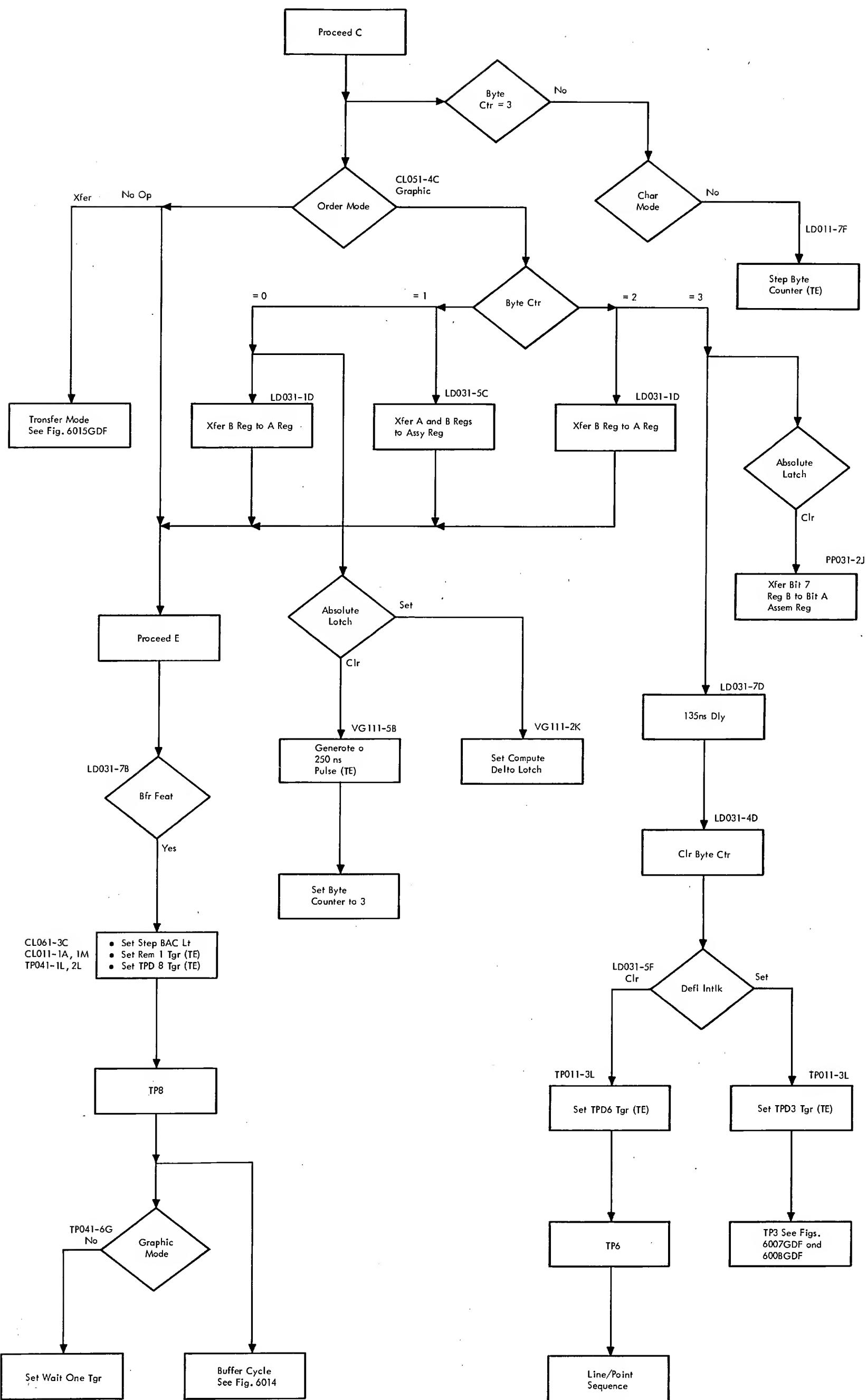
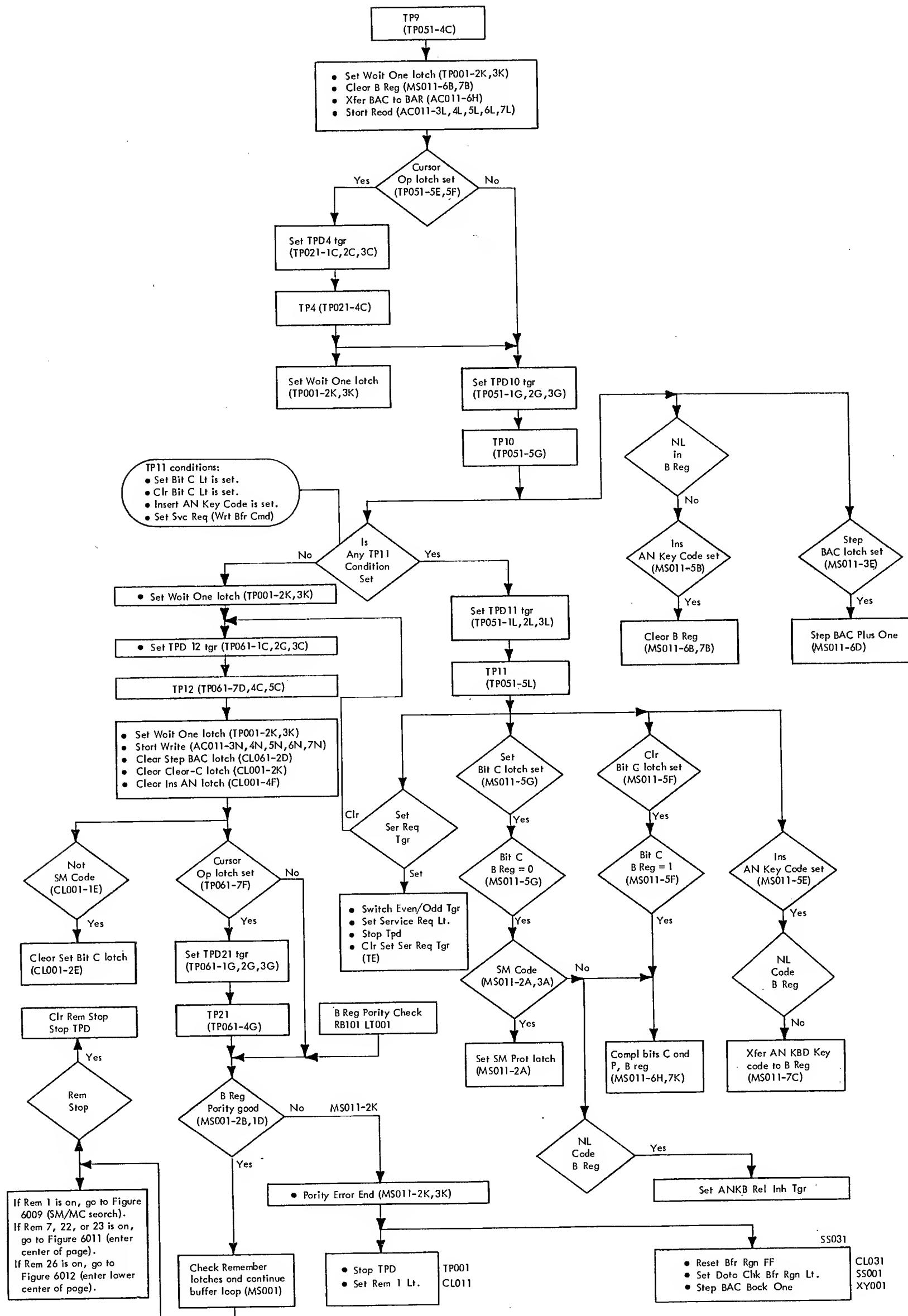


Figure 6013GDF. Buffer Regeneration, Proceed C and Proceed E, Graphic, Transfer and No Op Modes, Flow Chart (for GDF Machines)



•Figure 6014. Buffer Regeneration, Buffer Cycle, Flow Chart

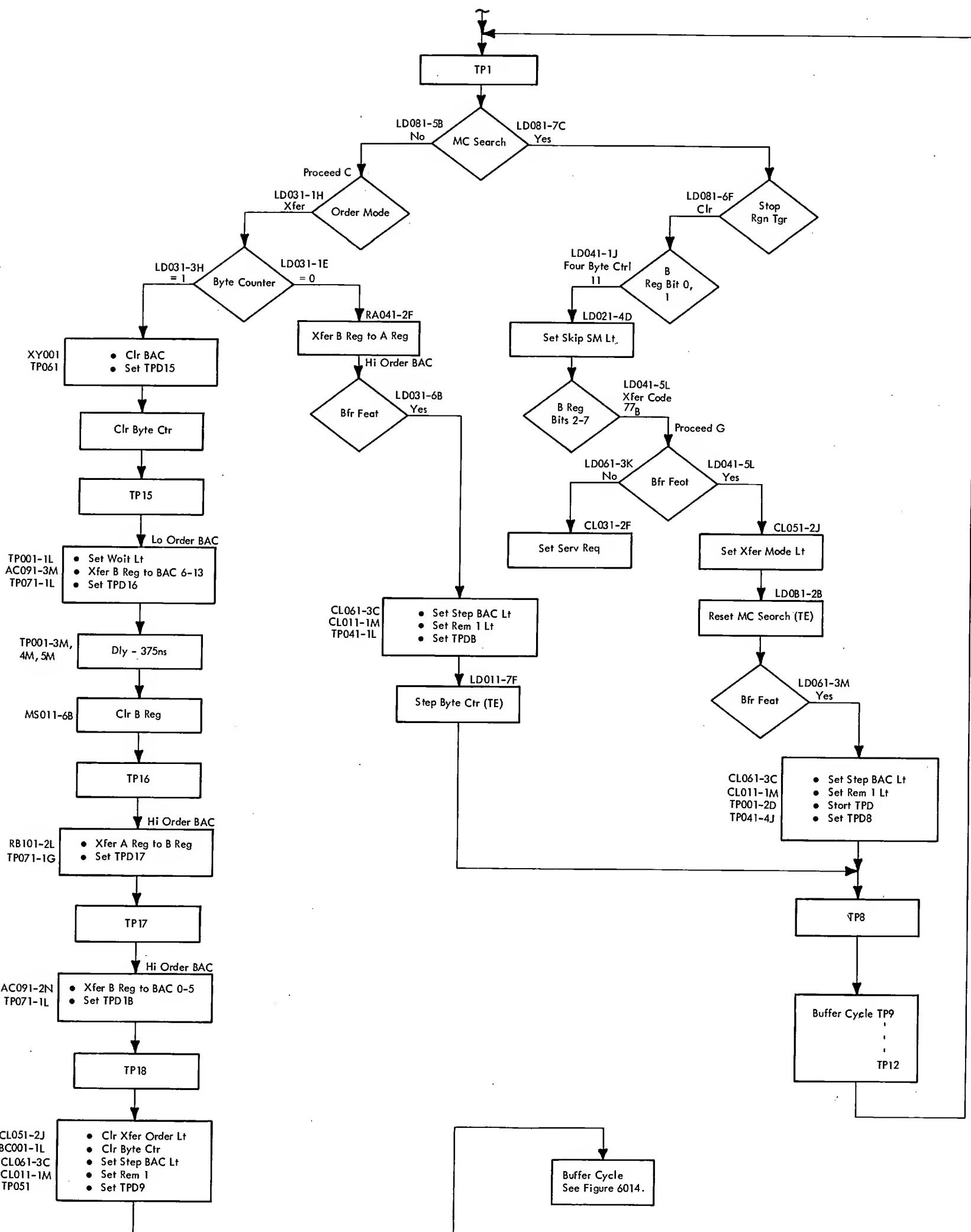


Figure 6015. Buffer Regeneration, Transfer Order Process, Flow Chart

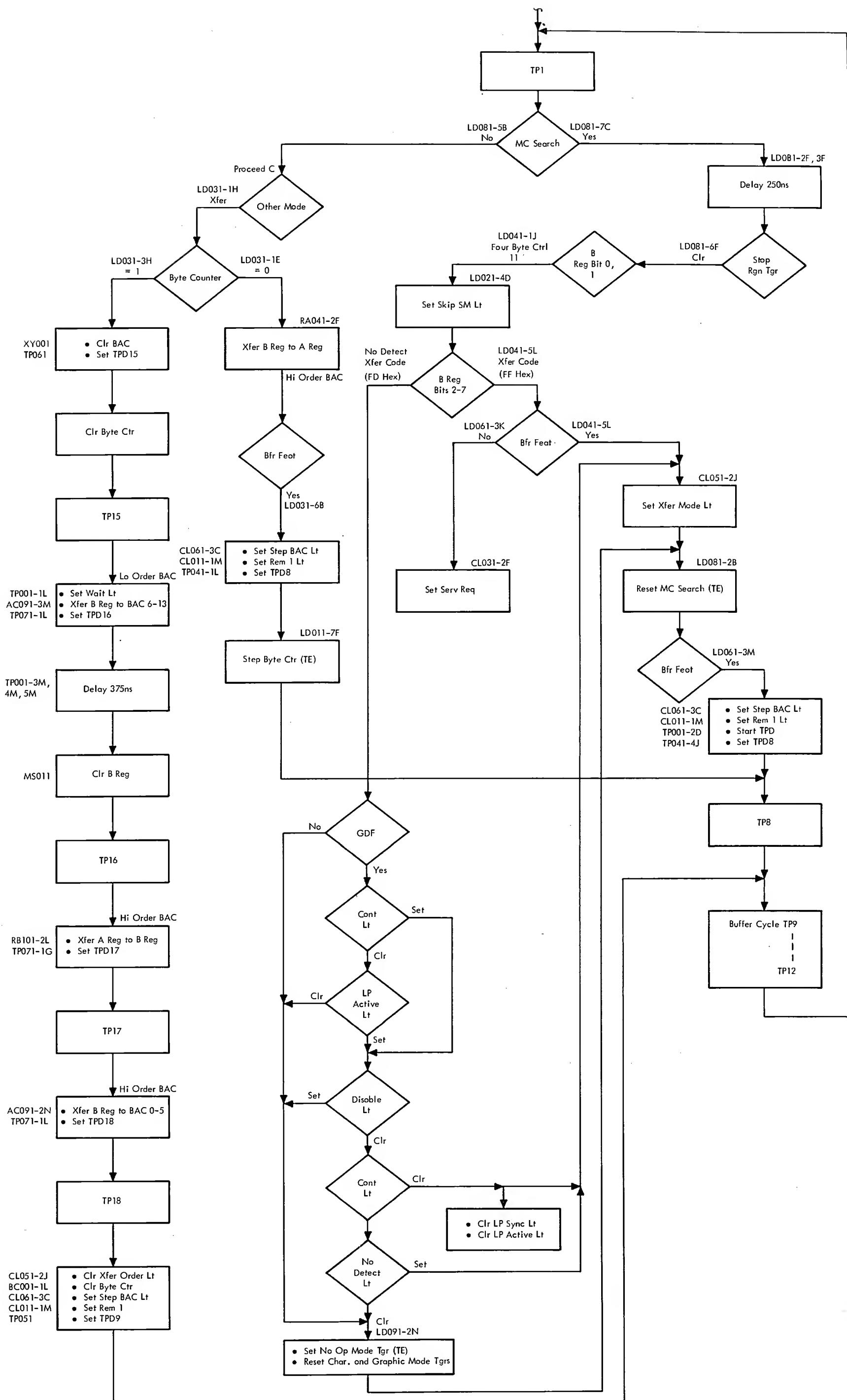


Figure 6015GDF. Buffer Regeneration, Transfer Order Process, Flow Chart (for GDF Machines)

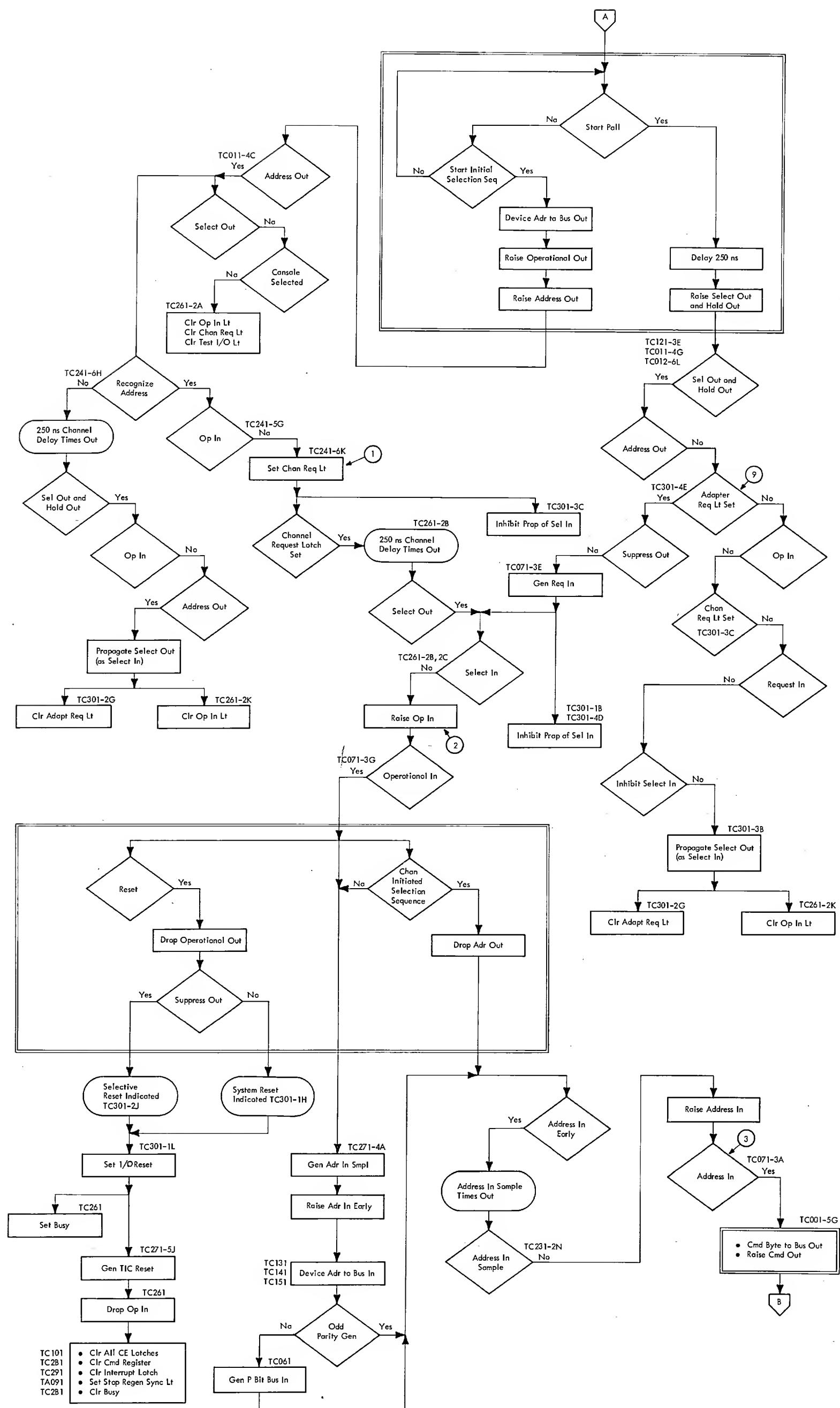


Figure 6016. Transmission Interface Control, Initial Selection Sequence, Flow Chart (Sheet 1 of 4)

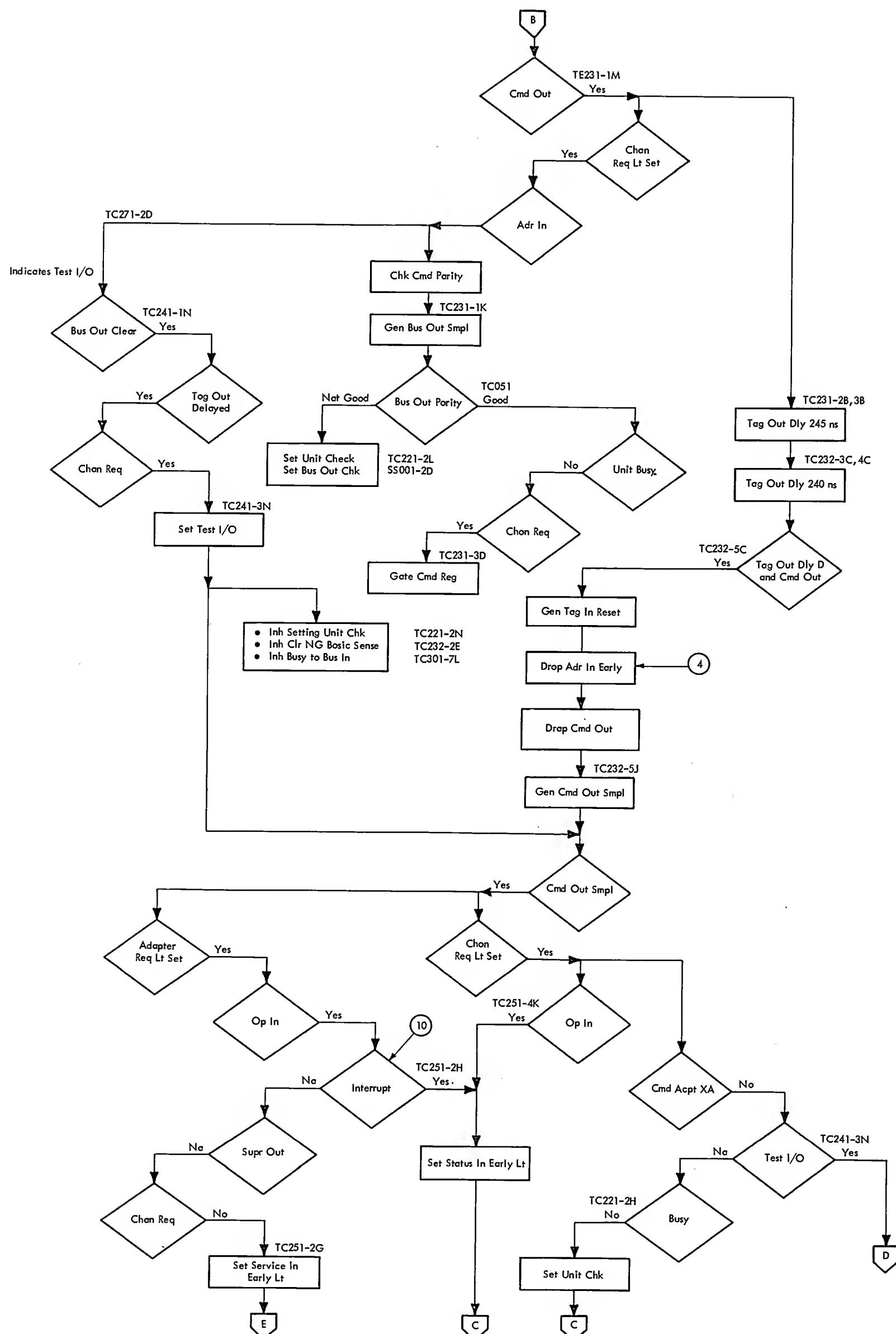


Figure 6016. Transmission Interface Control, Initial Selection Sequence, Flow Chart (Sheet 2 of 4)

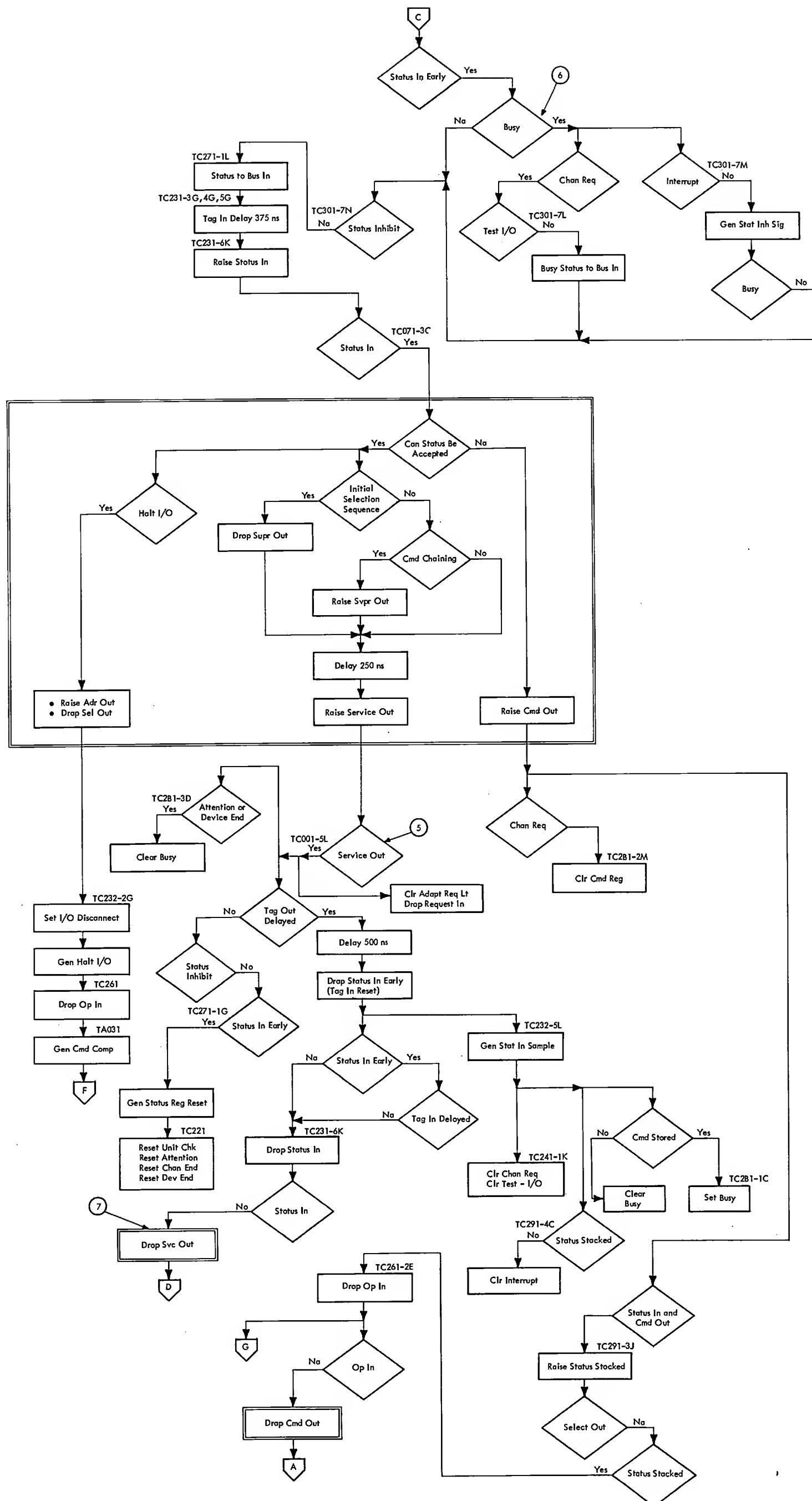


Figure 6016. Transmission Interface Control, Initial Selection Sequence, Flow Chart (Sheet 3 of 4)

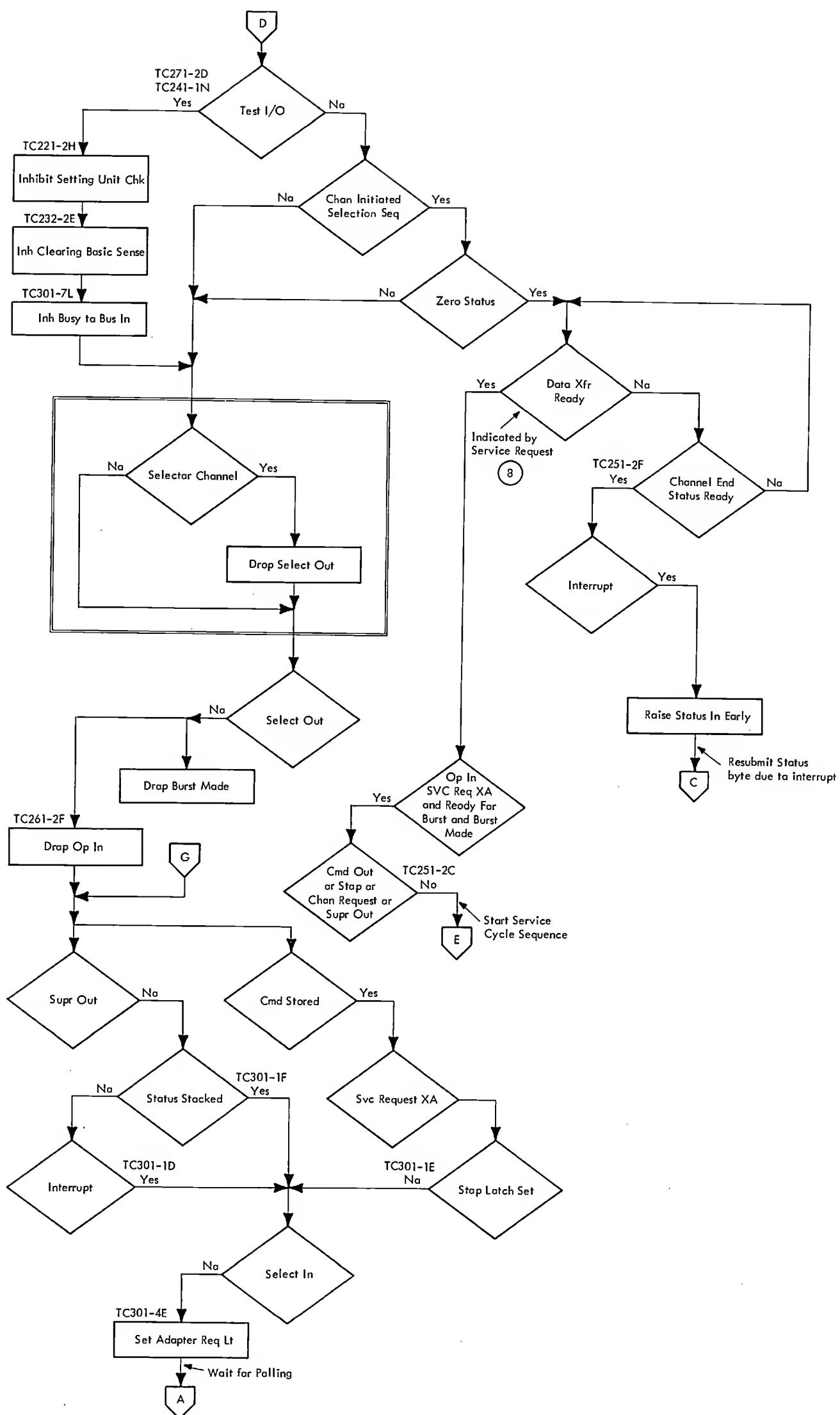


Figure 6016. Transmission Interface Control, Initial Selection Sequence, Flow Chart (Sheet 4 of 4)

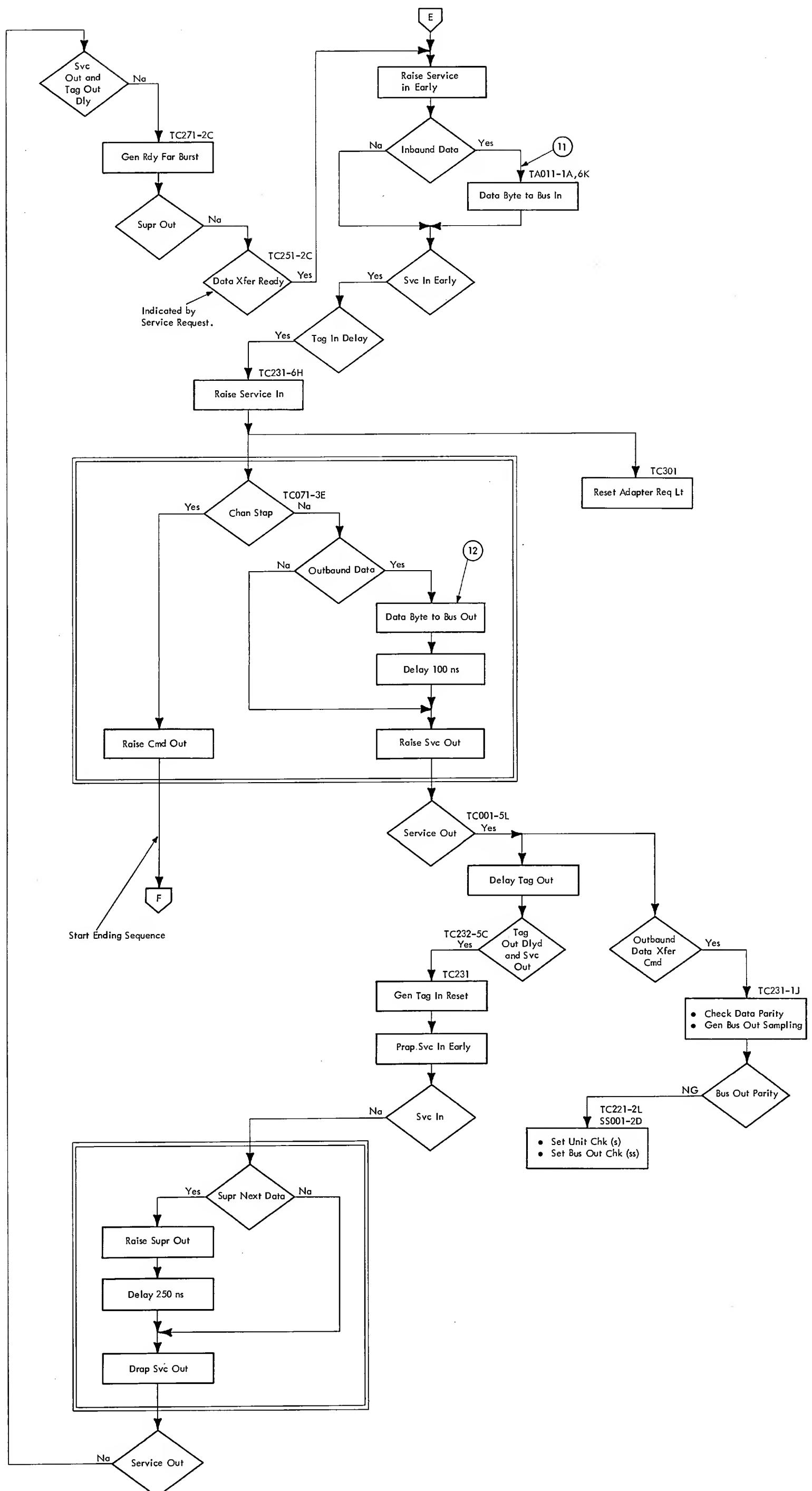


Figure 6017. Transmission Interface Control, Service Cycle Sequence, Flow Chart

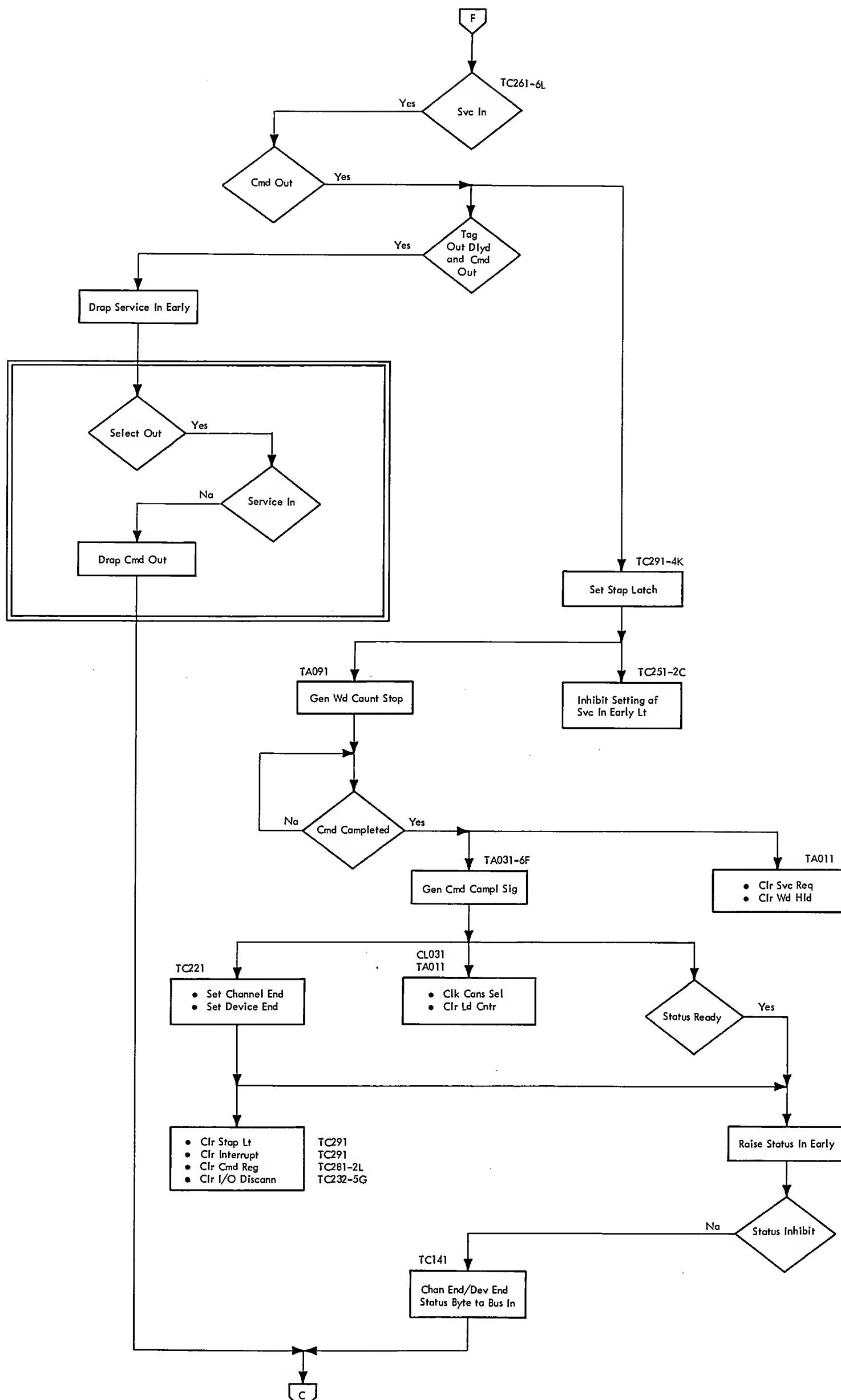


Figure 6018. Transmission Interface Control, Ending Sequence, Flow Chart

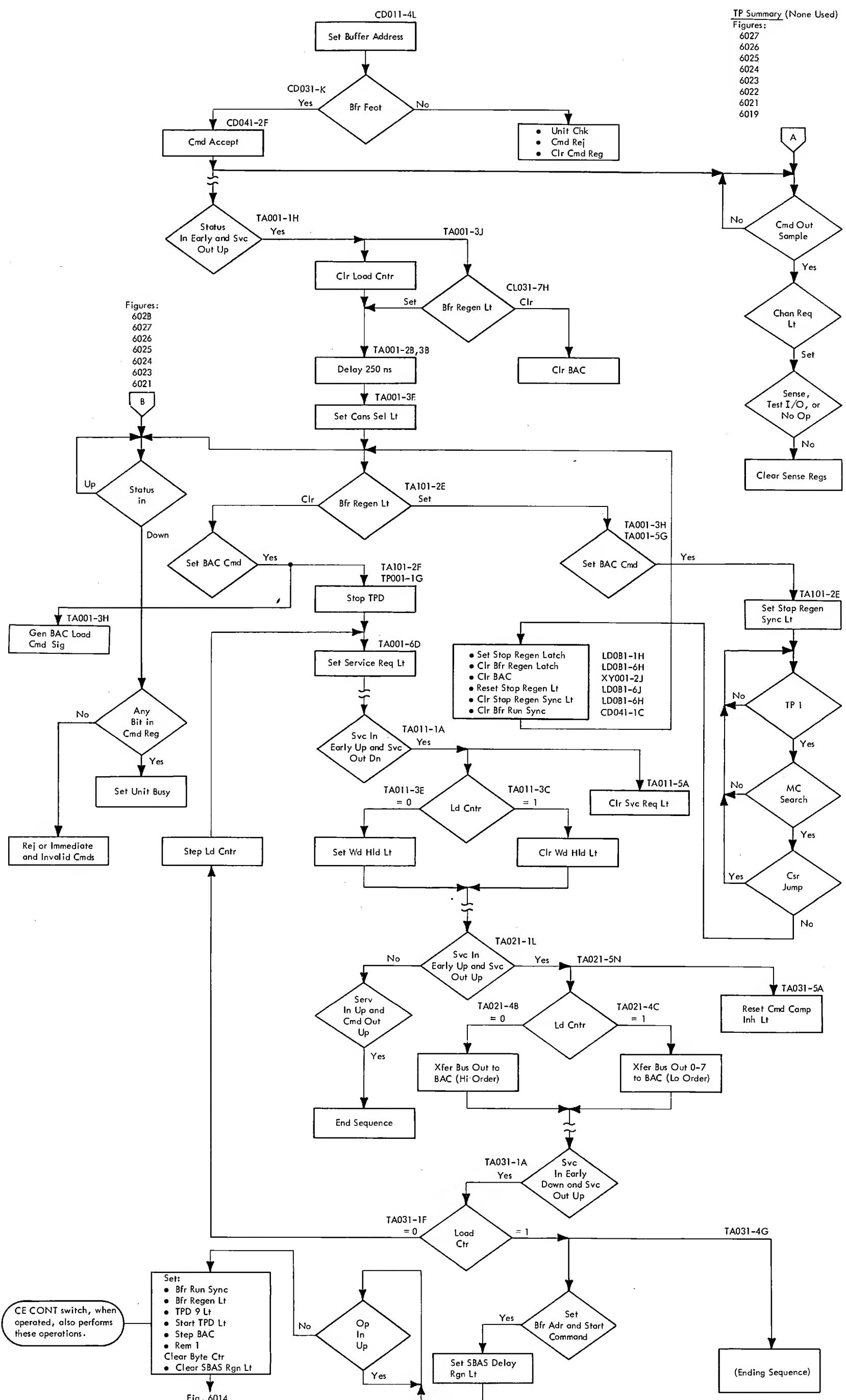


Figure 6019. Set Buffer Address Command, Flow Chart

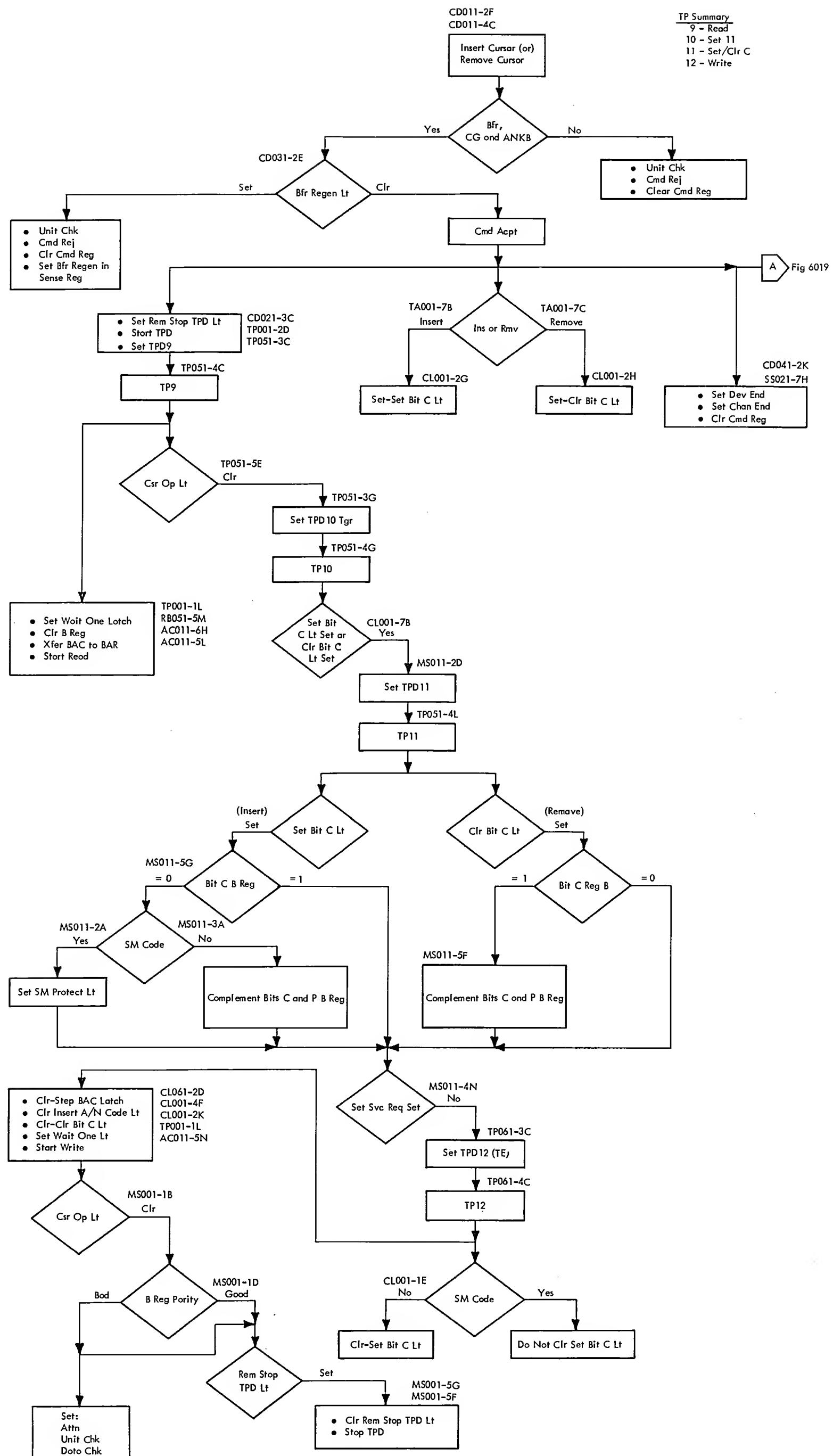


Figure 6020. Insert-Remove Cursor Command, Flow Chart

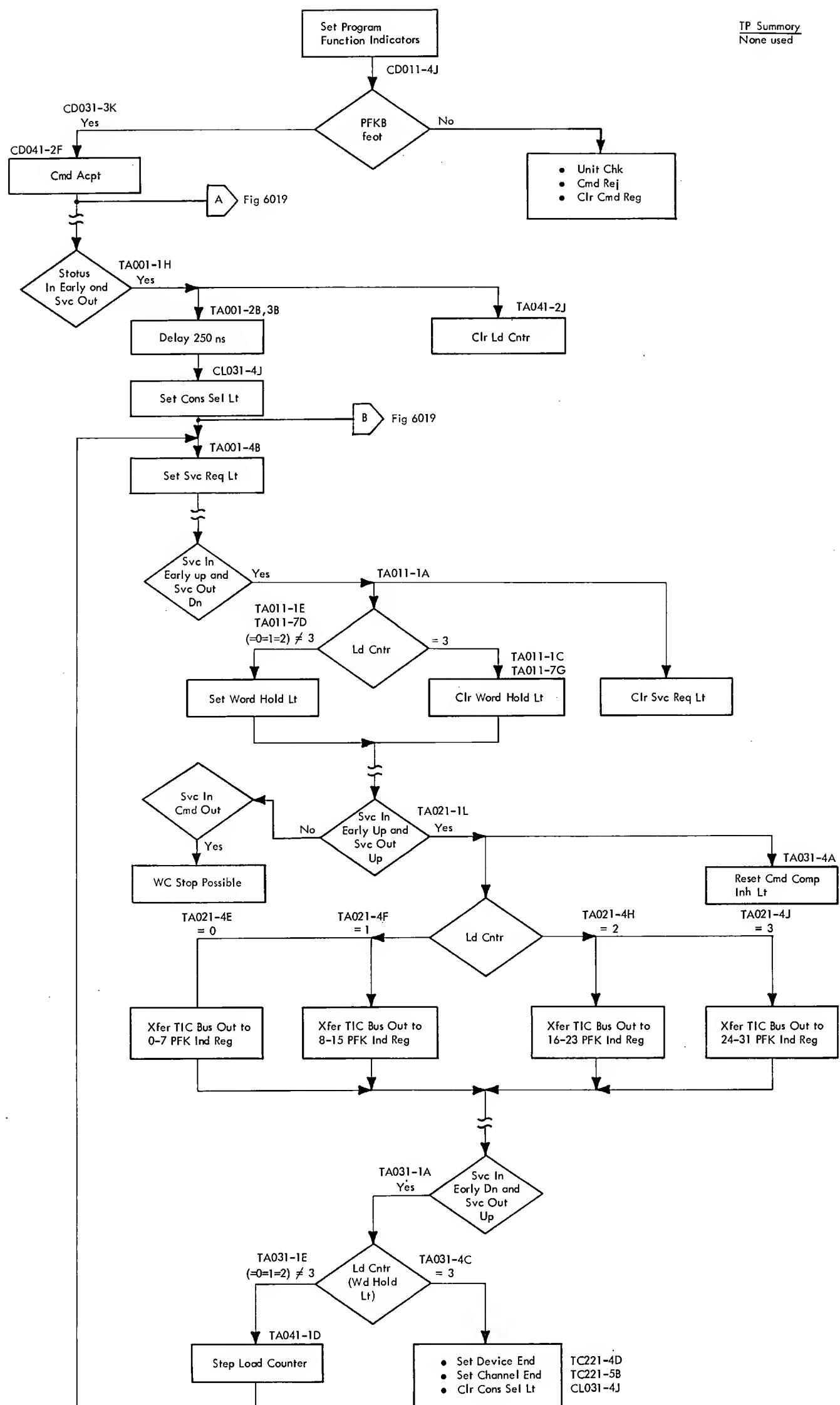


Figure 6021. Set Program Function Keyboard Indicators Command, Flow Chart

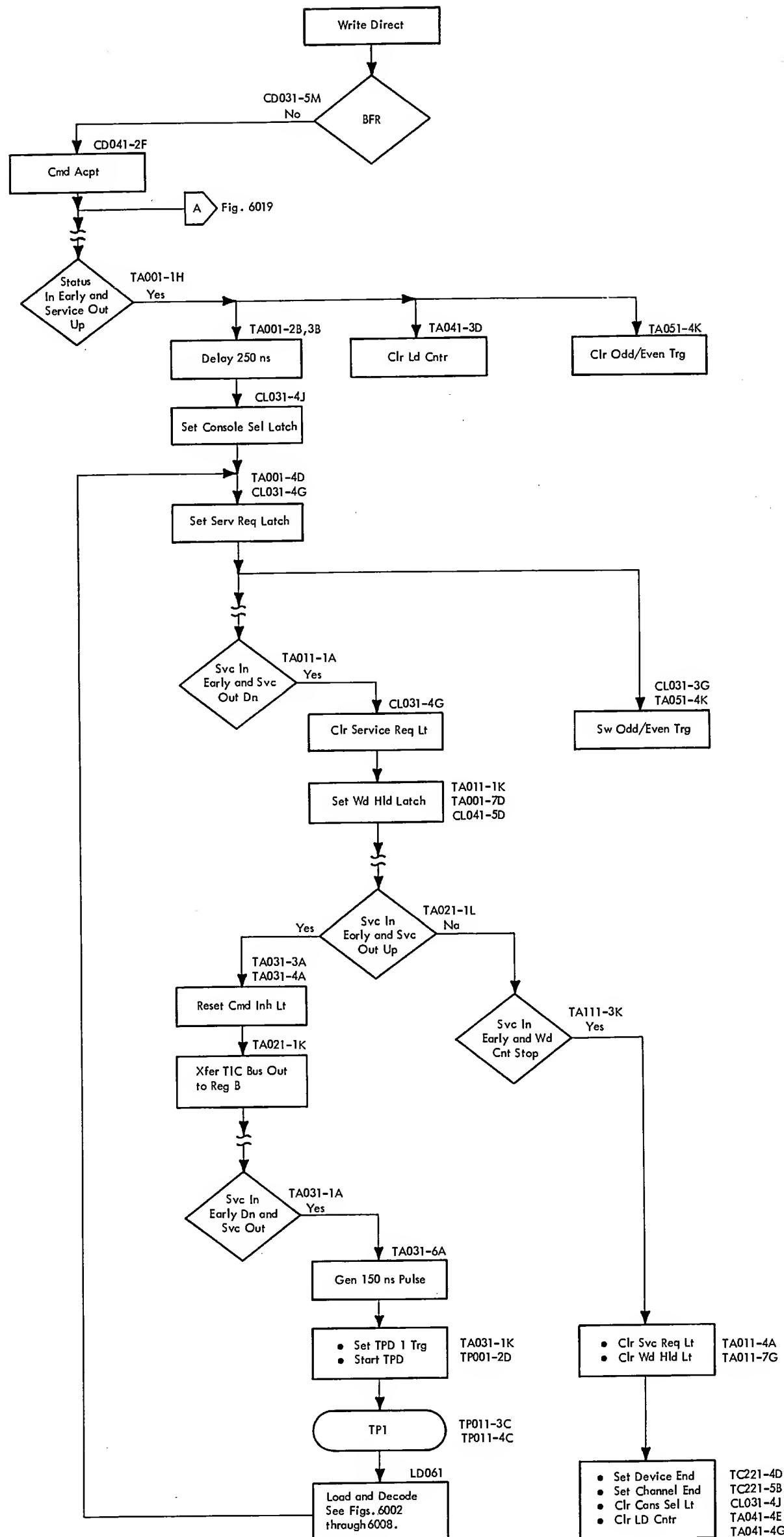
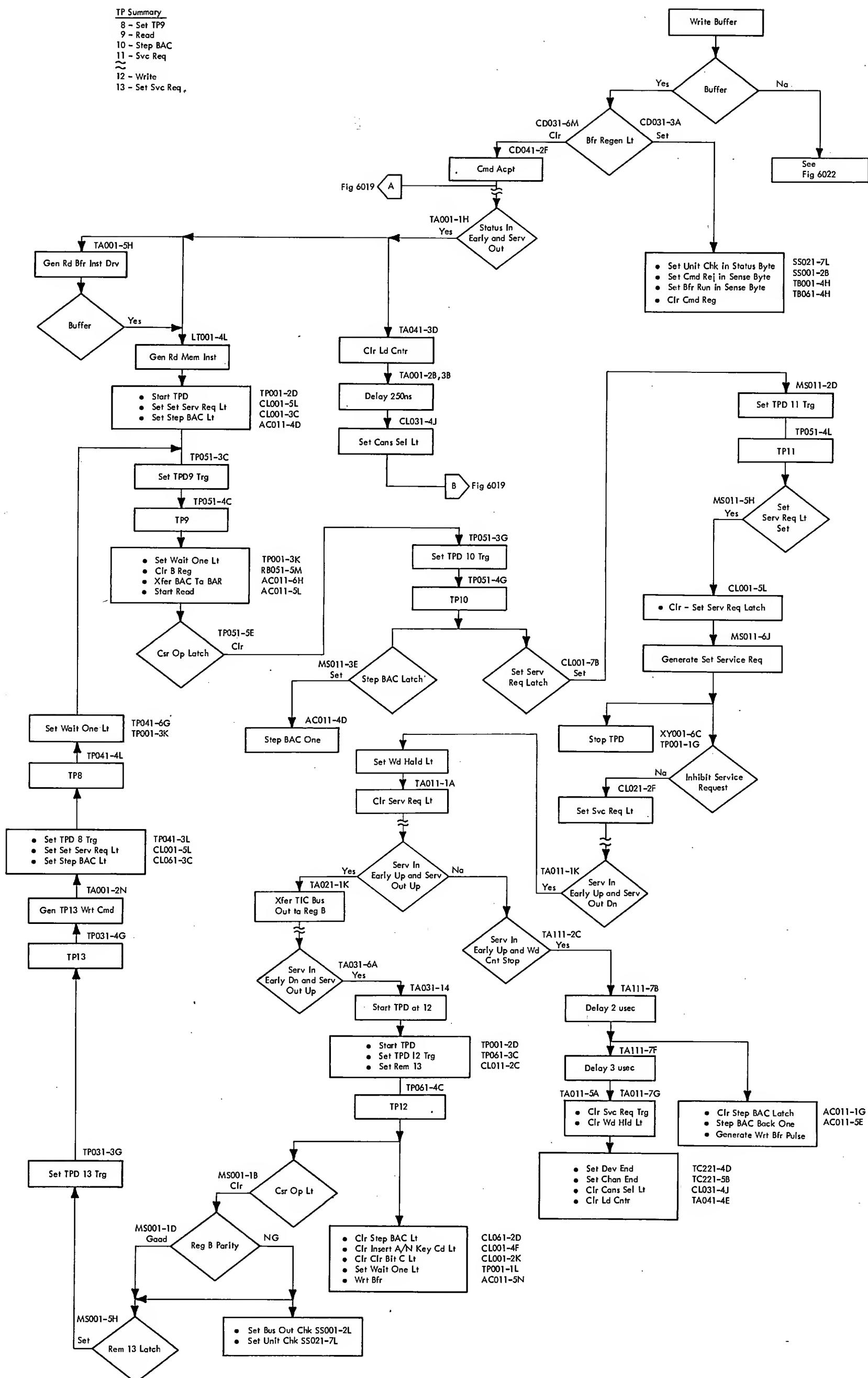


Figure 6022. Write Direct Command, Flow Chart



•Figure 6023. Write Buffer Command, Flow Chart

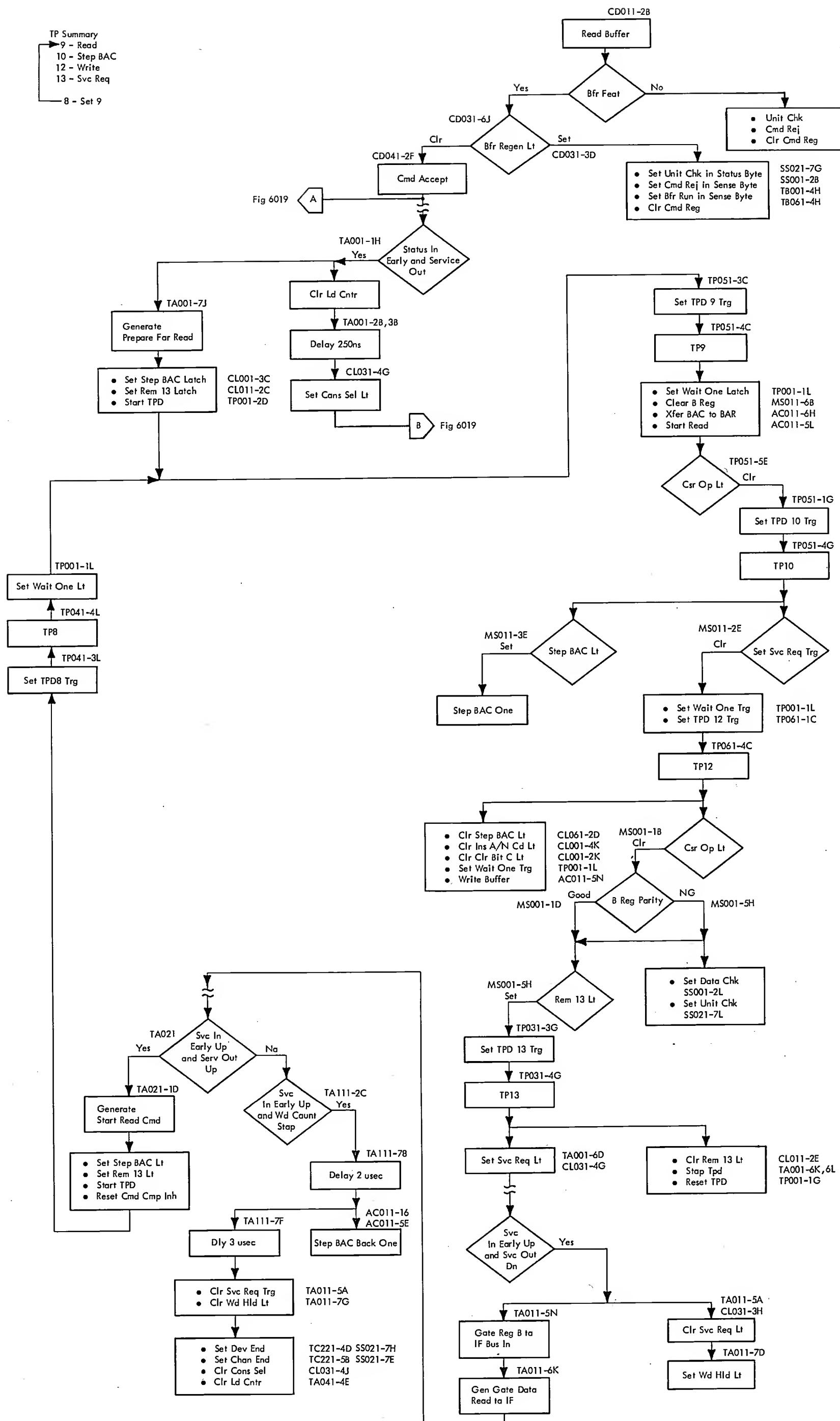


Figure 6024. Read Buffer Command, Flow Chart

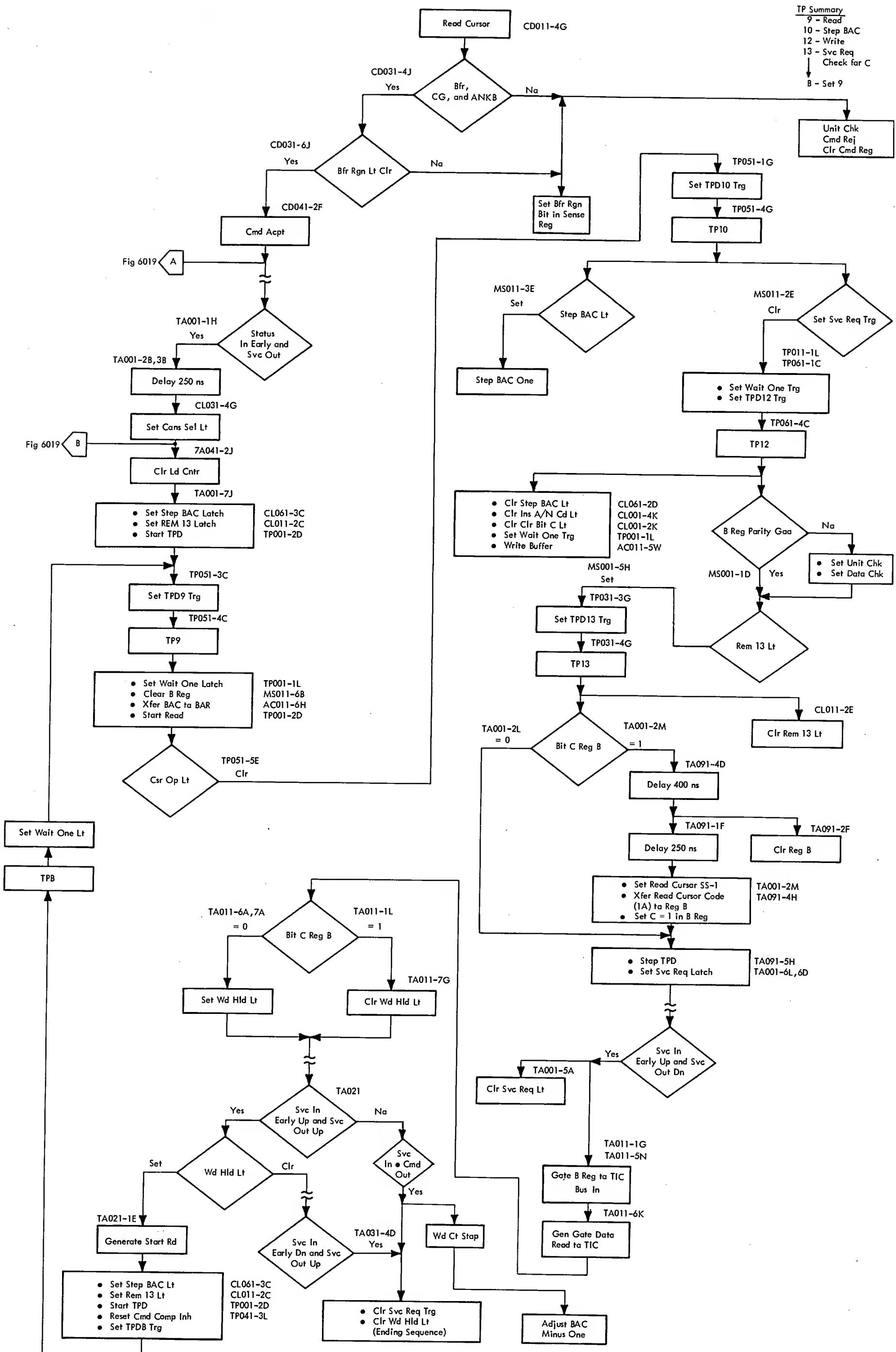


Figure 6025. Read Cursor Command. Flow Chart

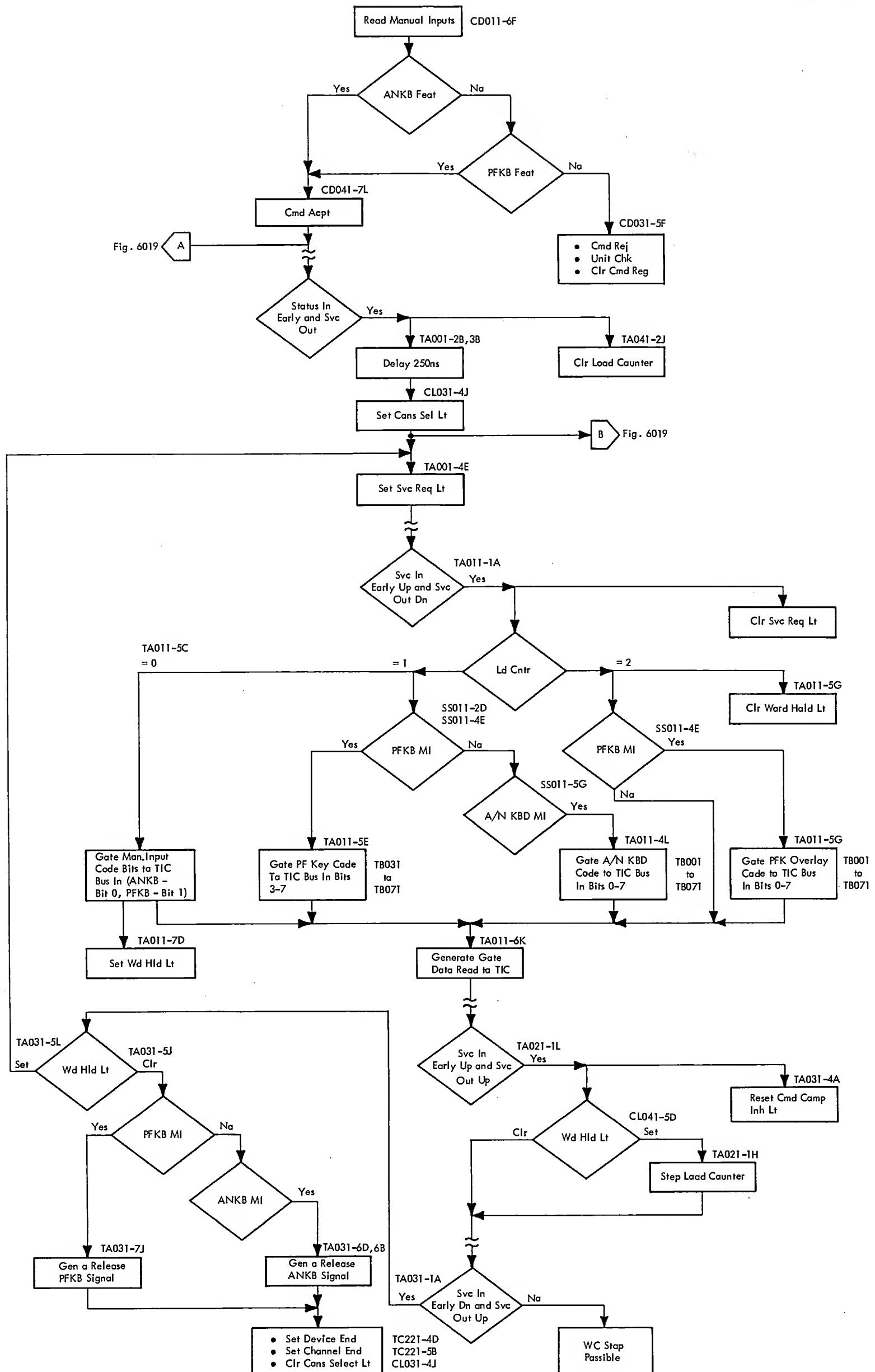


Figure 6026. Read Manual Inputs Command, Flow Chart

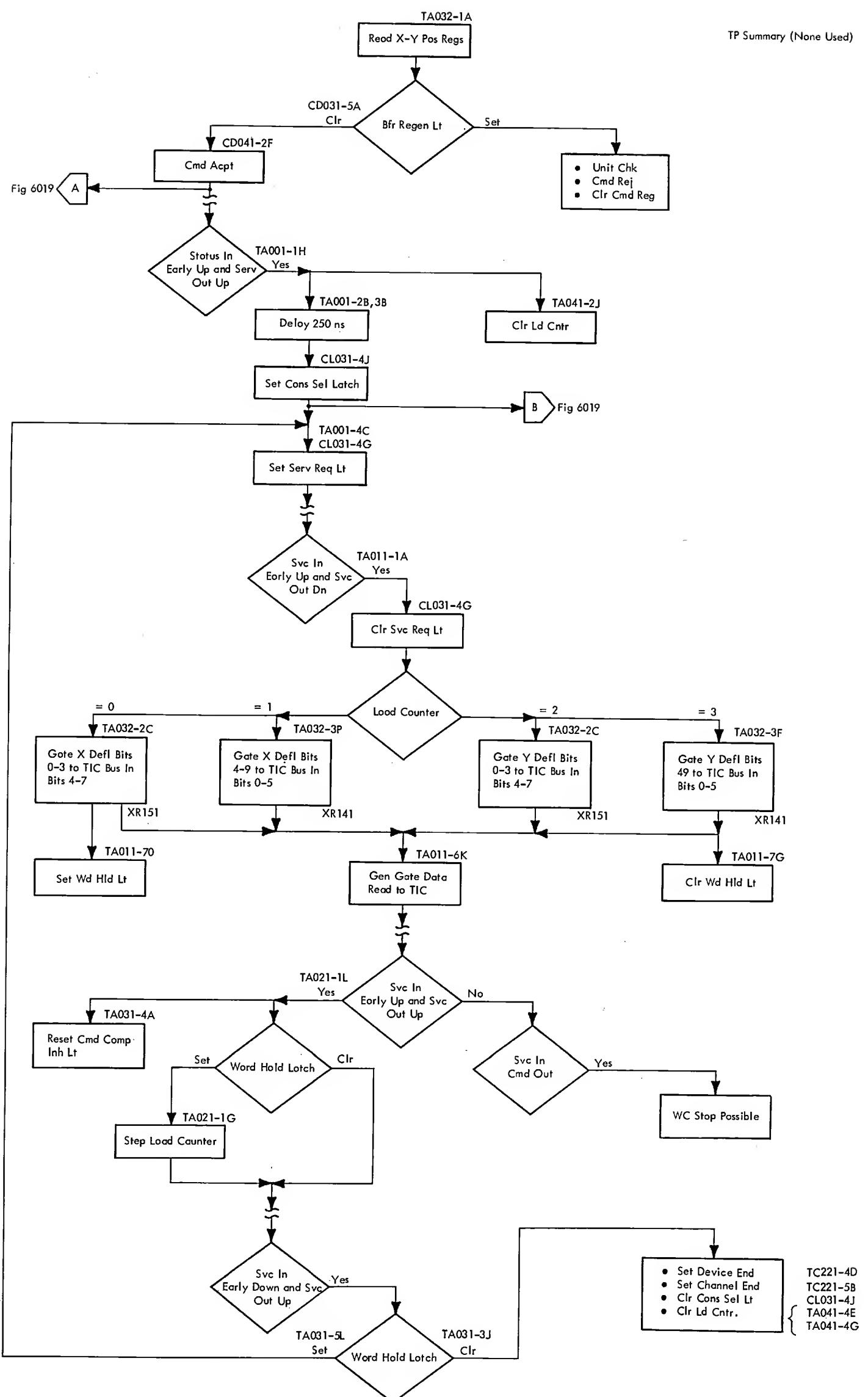


Figure 6027. Read X-Y Position Registers Command, Flow Chart

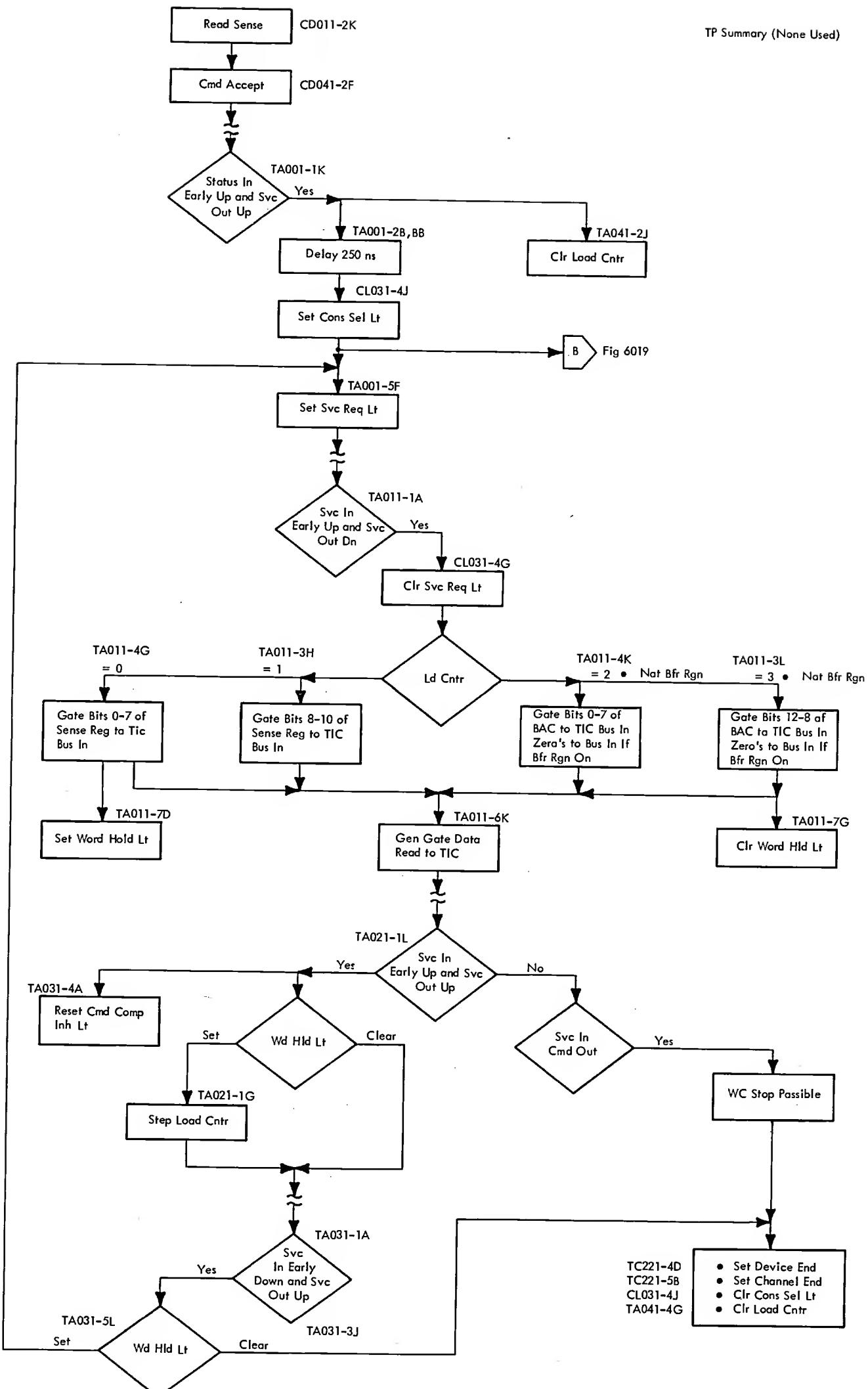


Figure 6028. Sense Command, Flow Chart

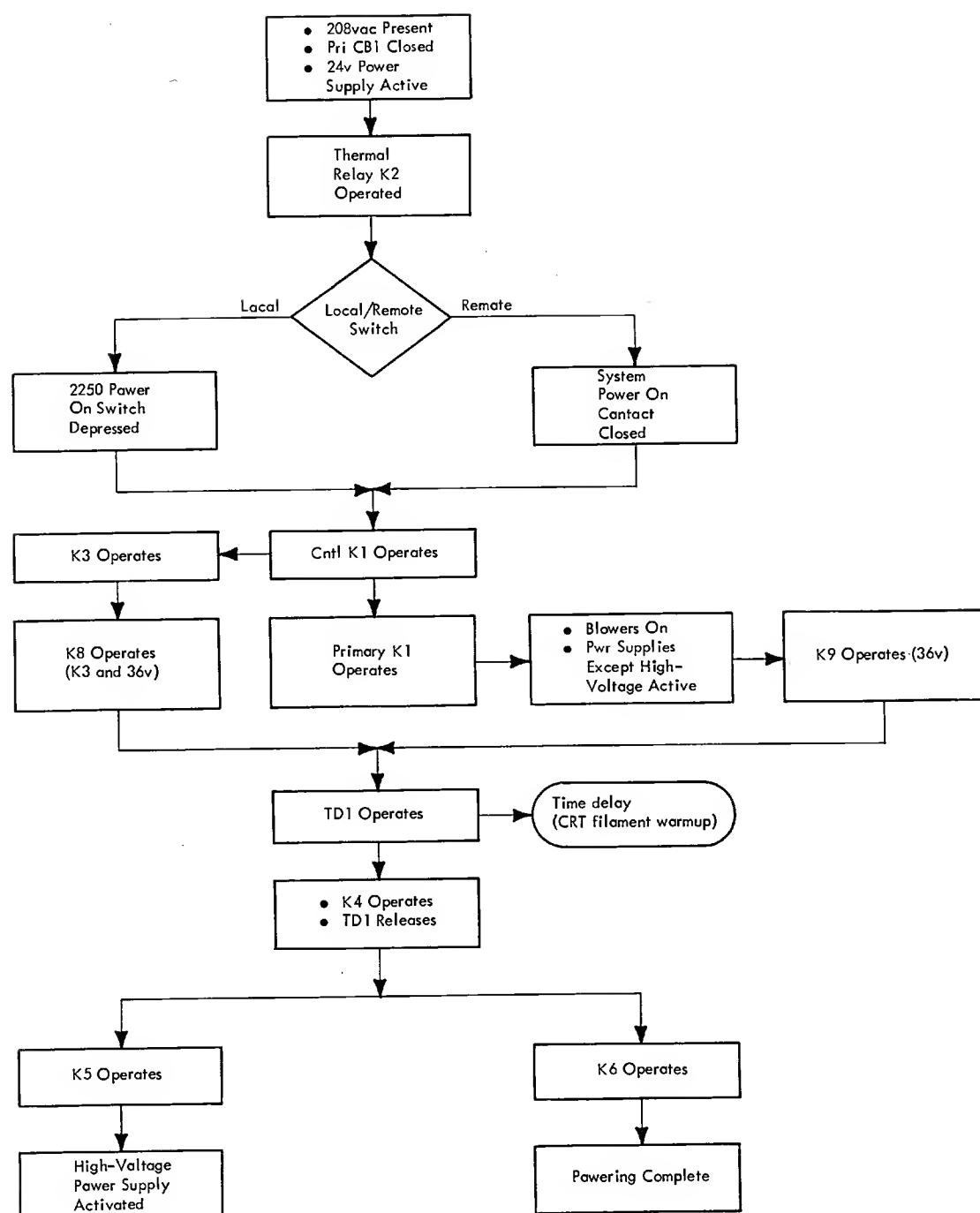


Figure 6029. Power On Sequence

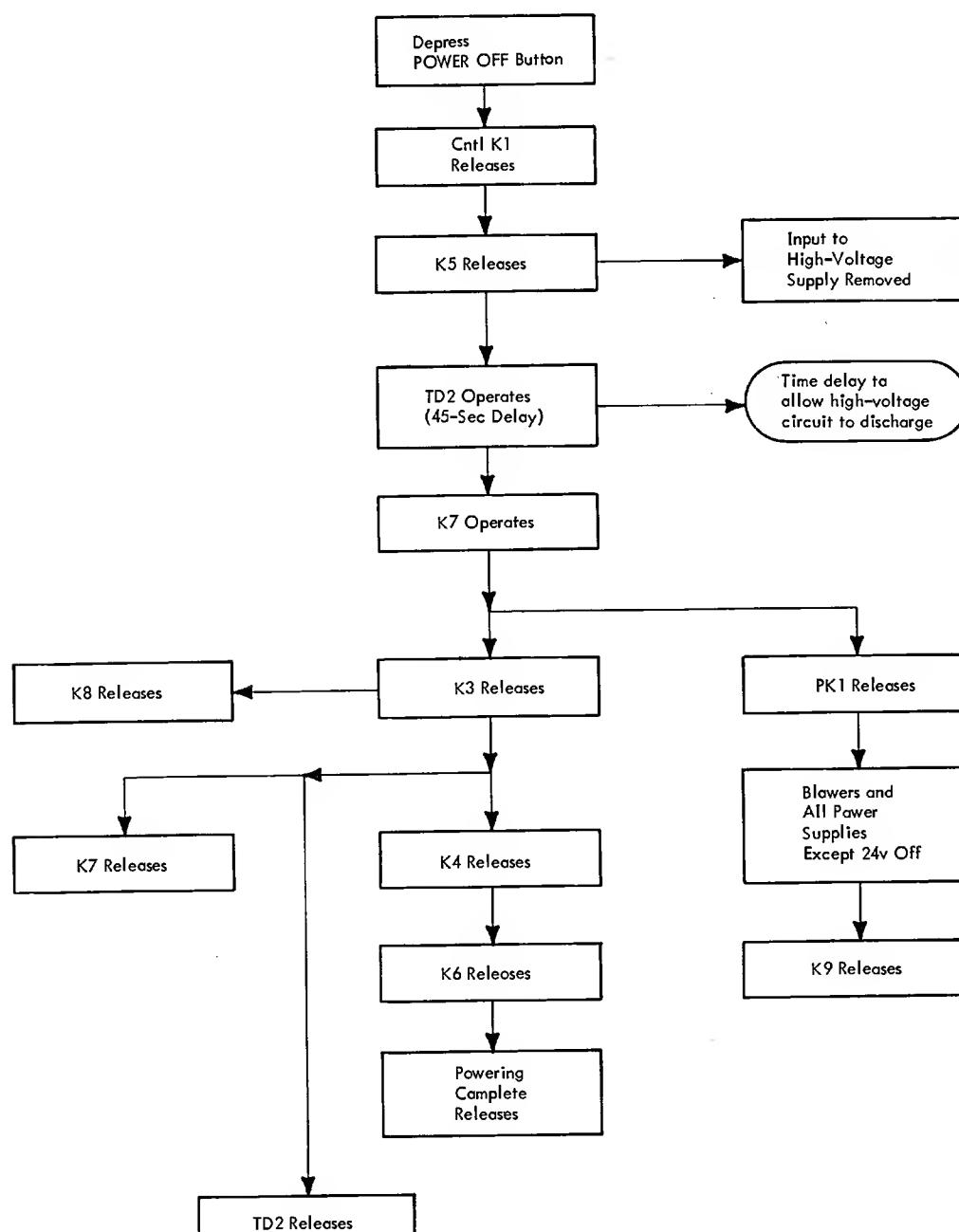


Figure 6030. Power Off Sequence

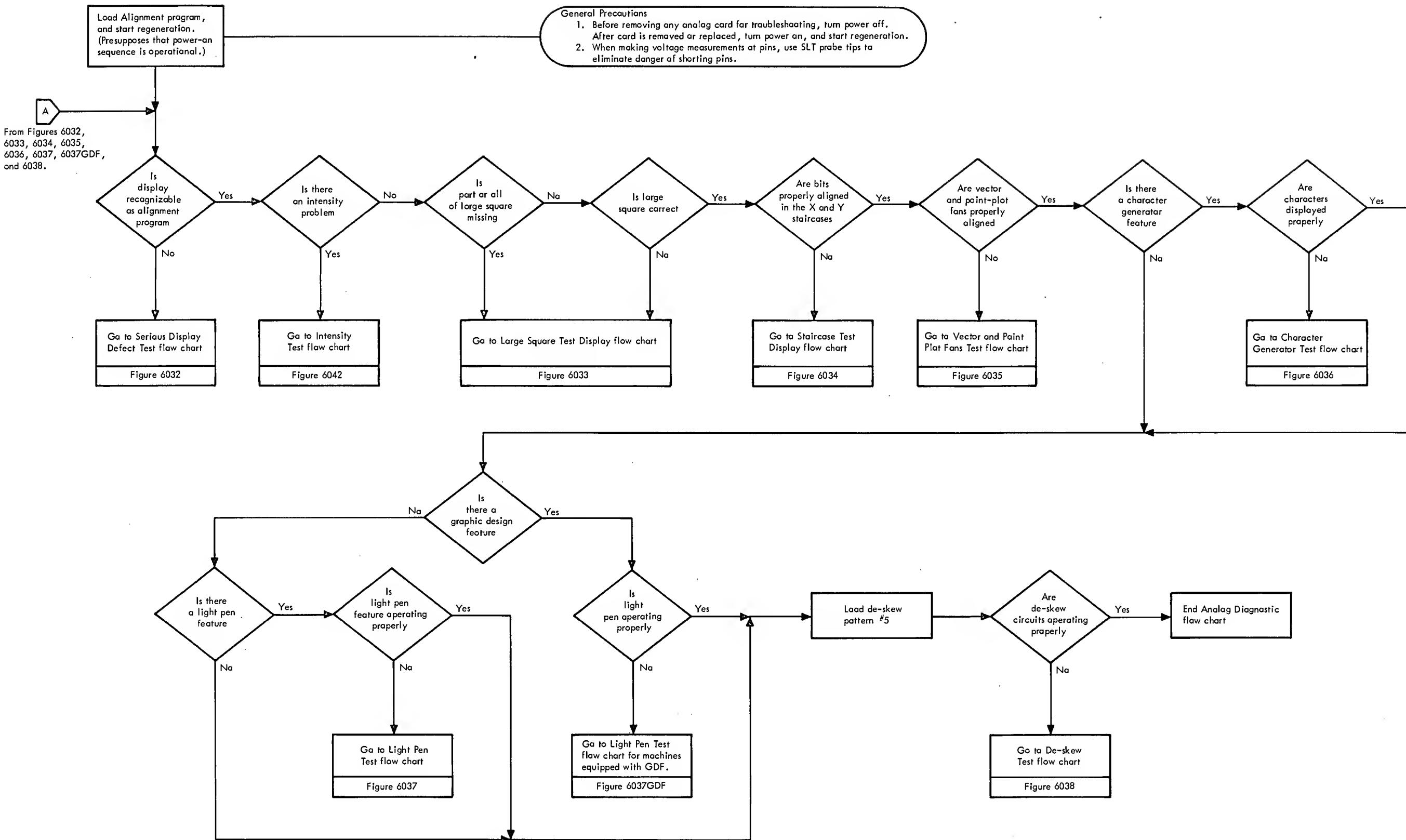


Figure 6031. Analog Diagnostic Master Flow Chart

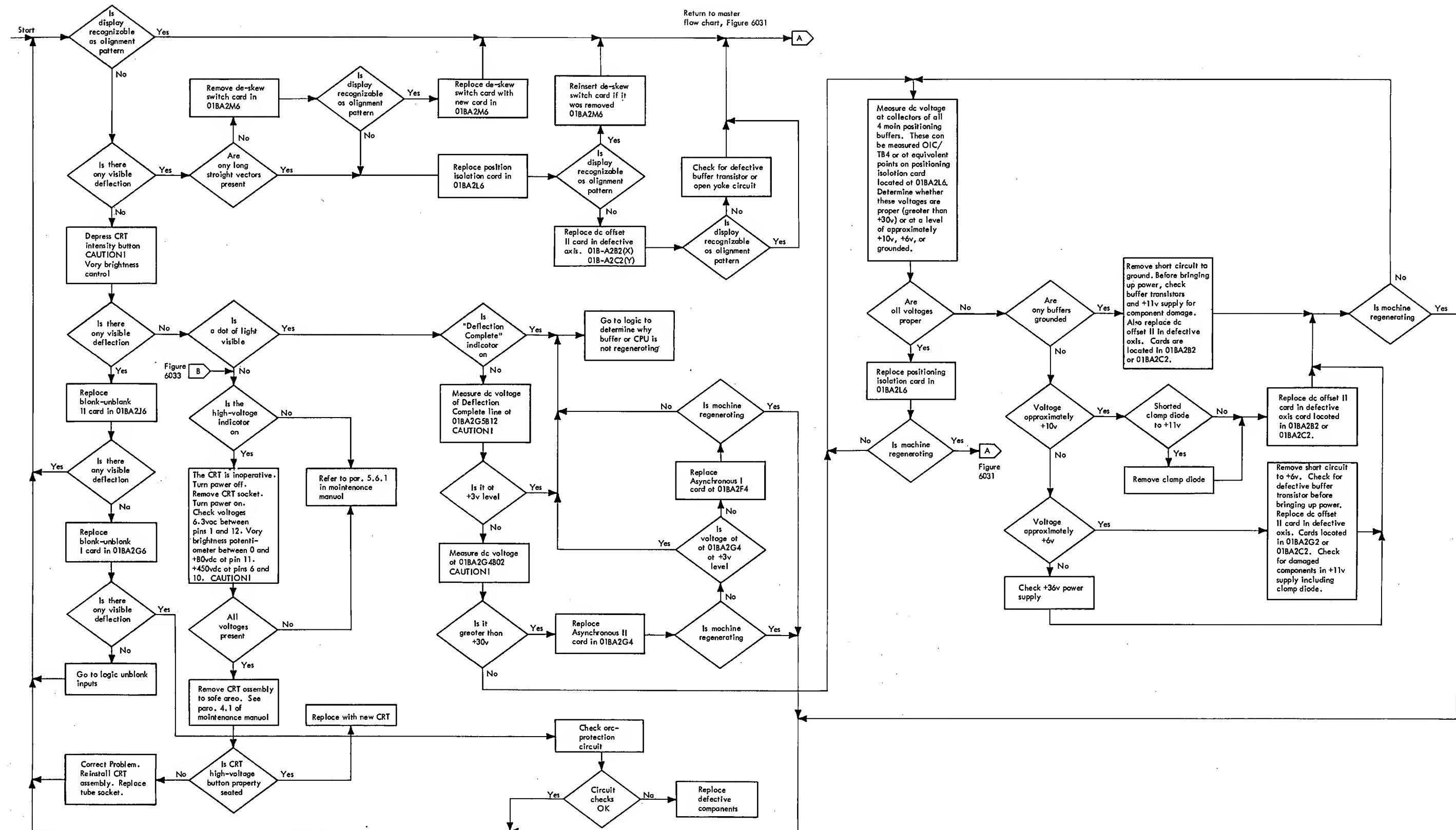


Figure 6032. Serious Display Defect Test Flow Charts

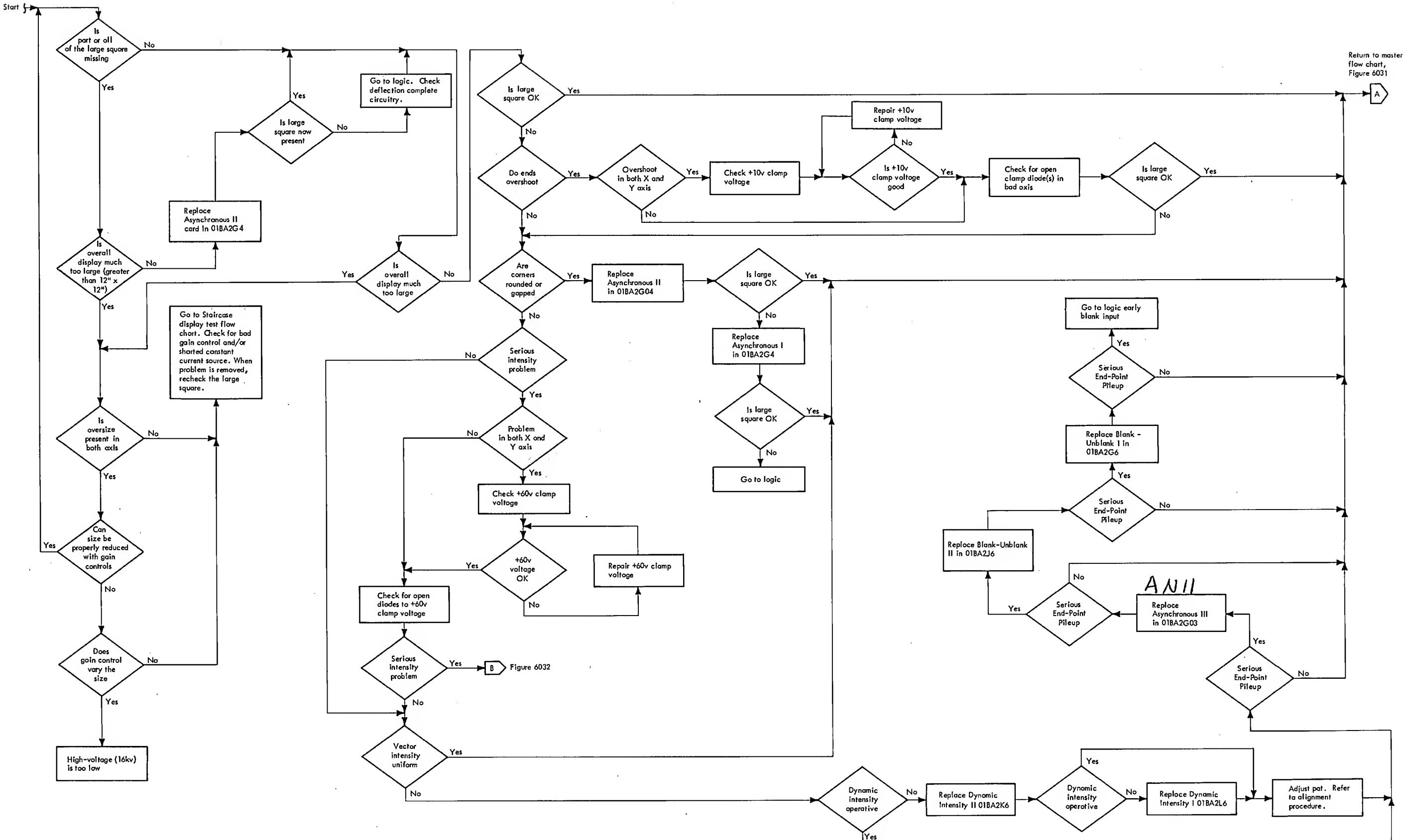


Figure 6033. Large Square Test Display Flow Chart

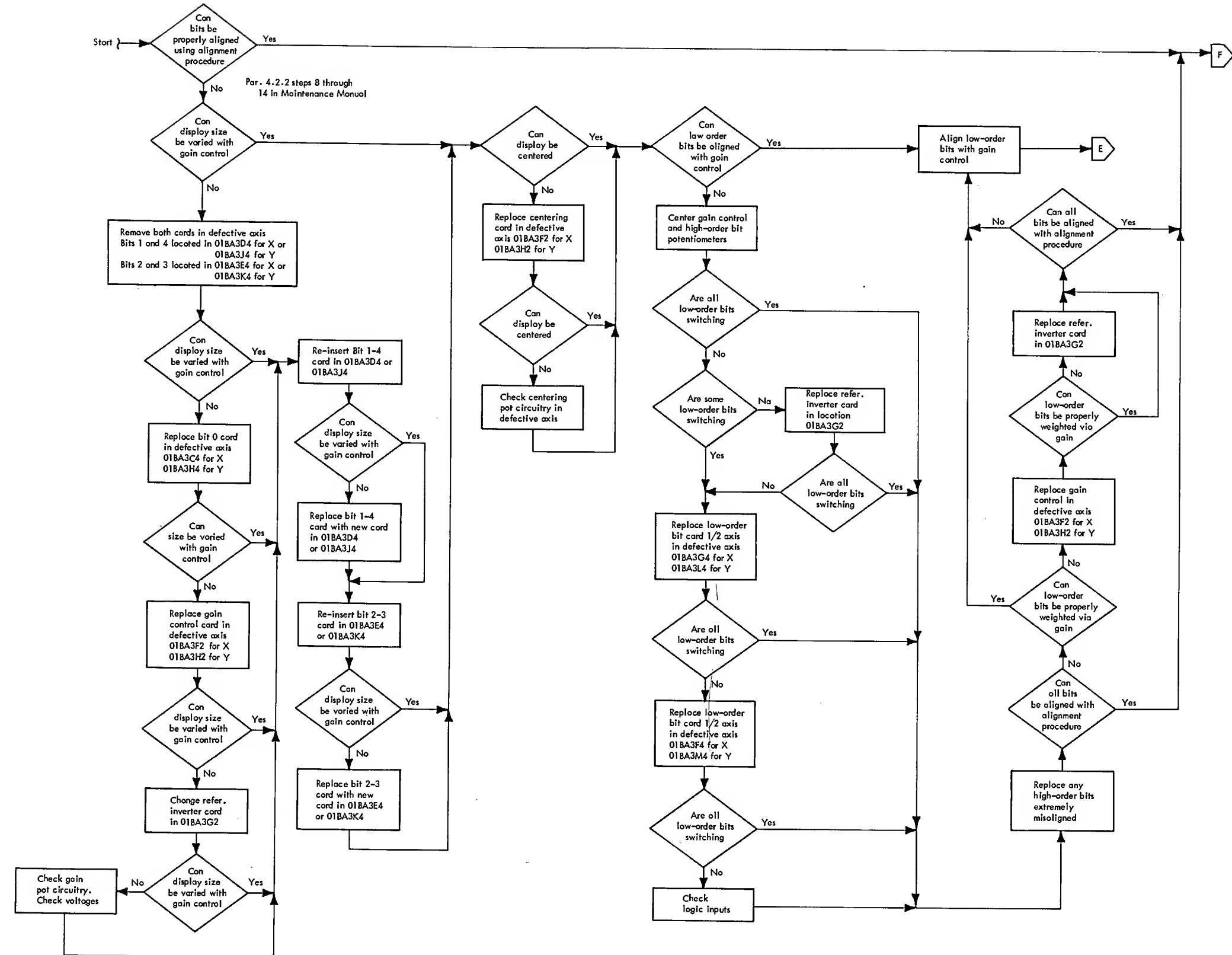


Figure 6034. Staircase Test Display Flow Chart (Sheet 1 of 2)

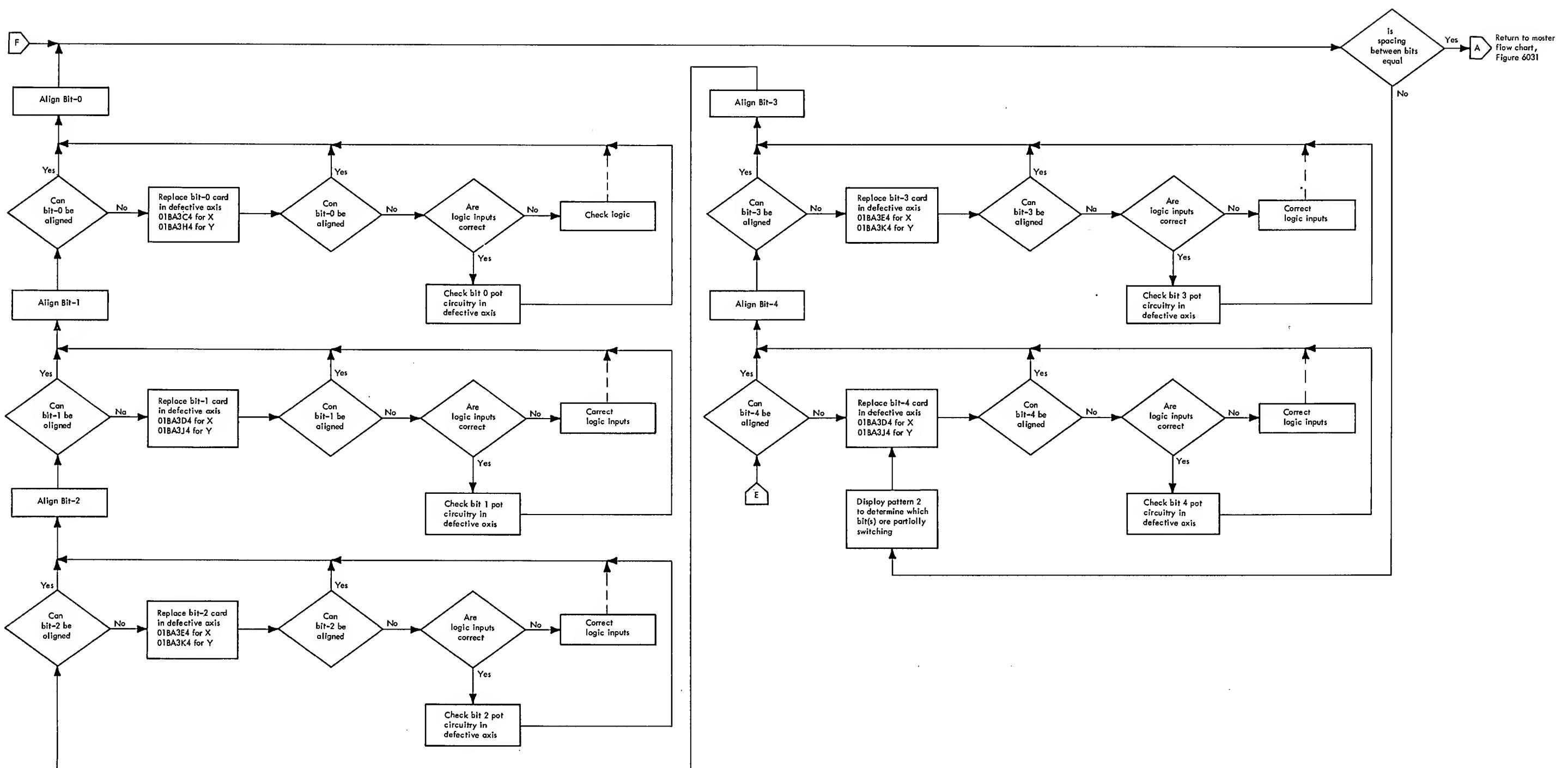


Figure 6034. Staircase Test Display Flow Chart (Sheet 2 of 2)

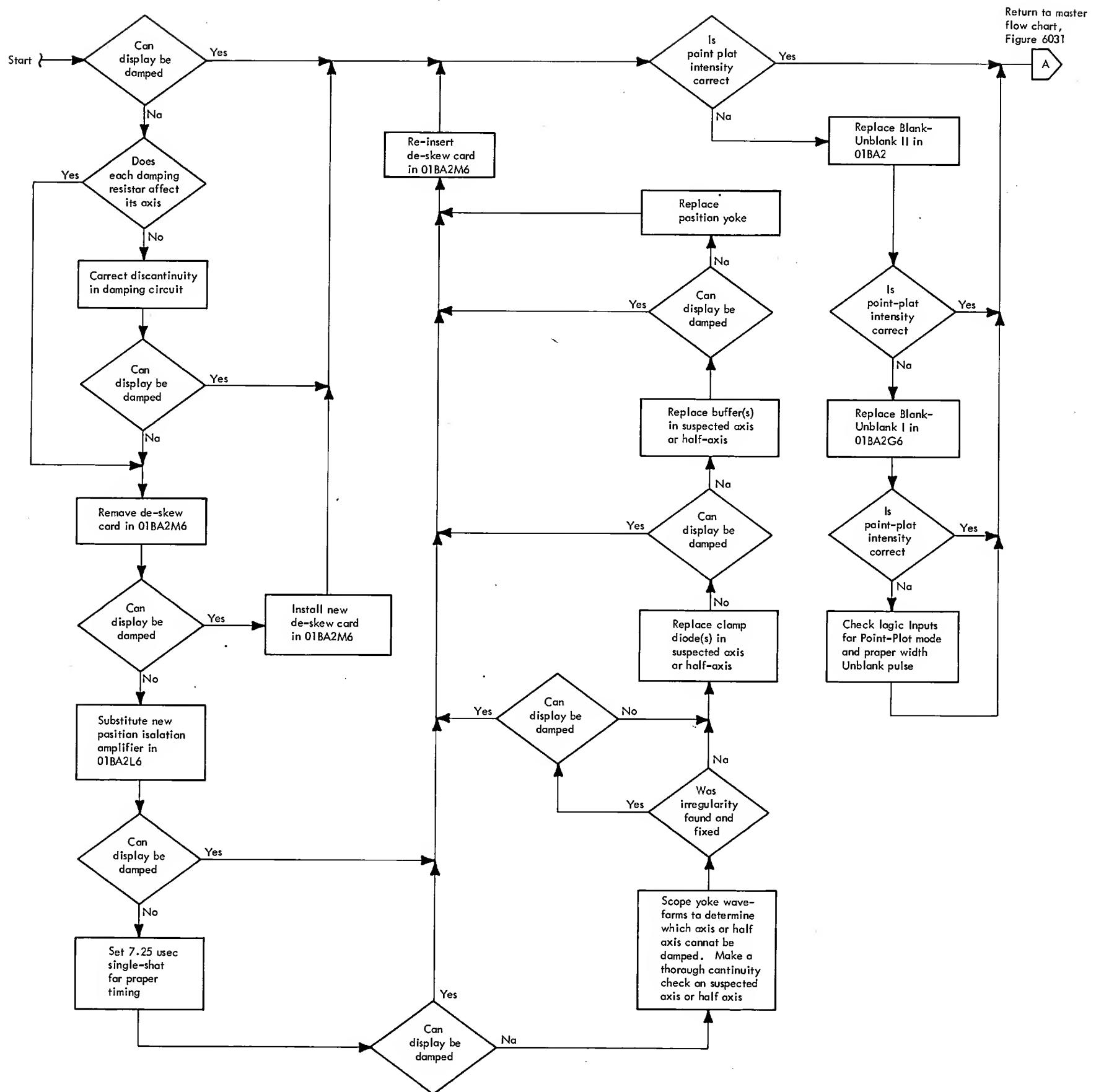


Figure 6035. Vector and Point Plot Fans Test Display Flow Chart

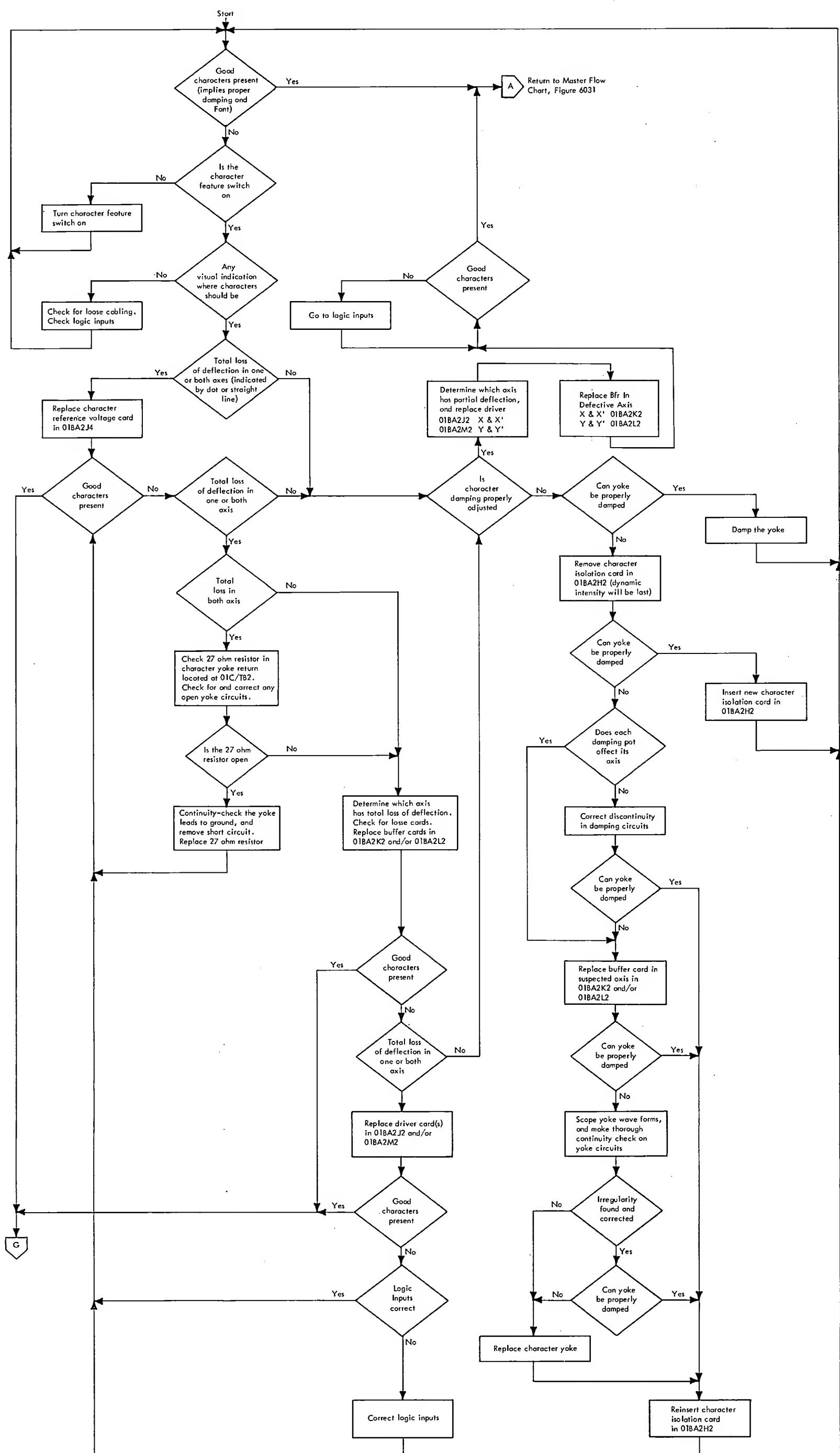


Figure 6036. Character Generator Test Flow Chart (Sheet 1 of 2)

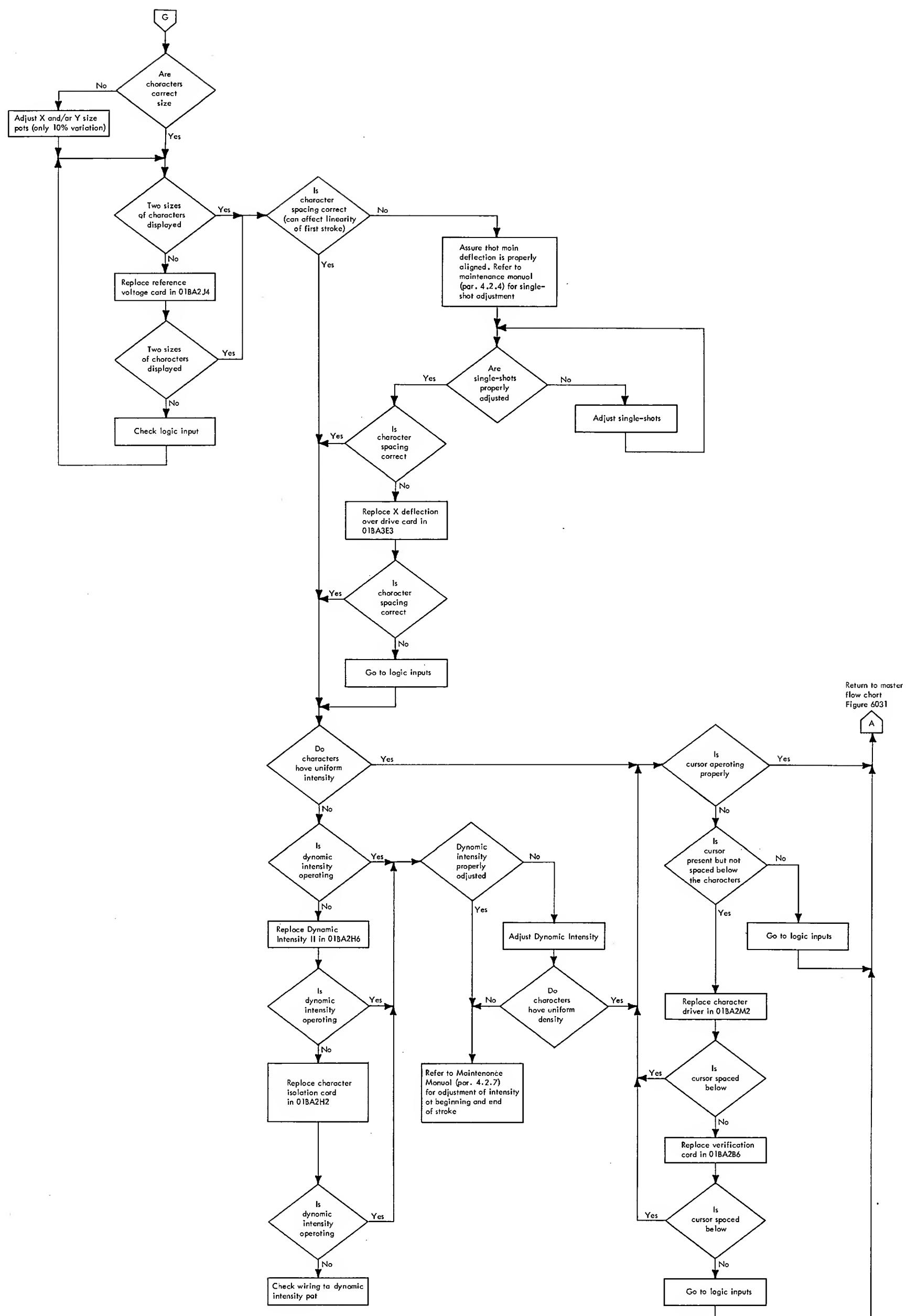


Figure 6036. Character Generator Test Flow Chart (Sheet 2 of 2)

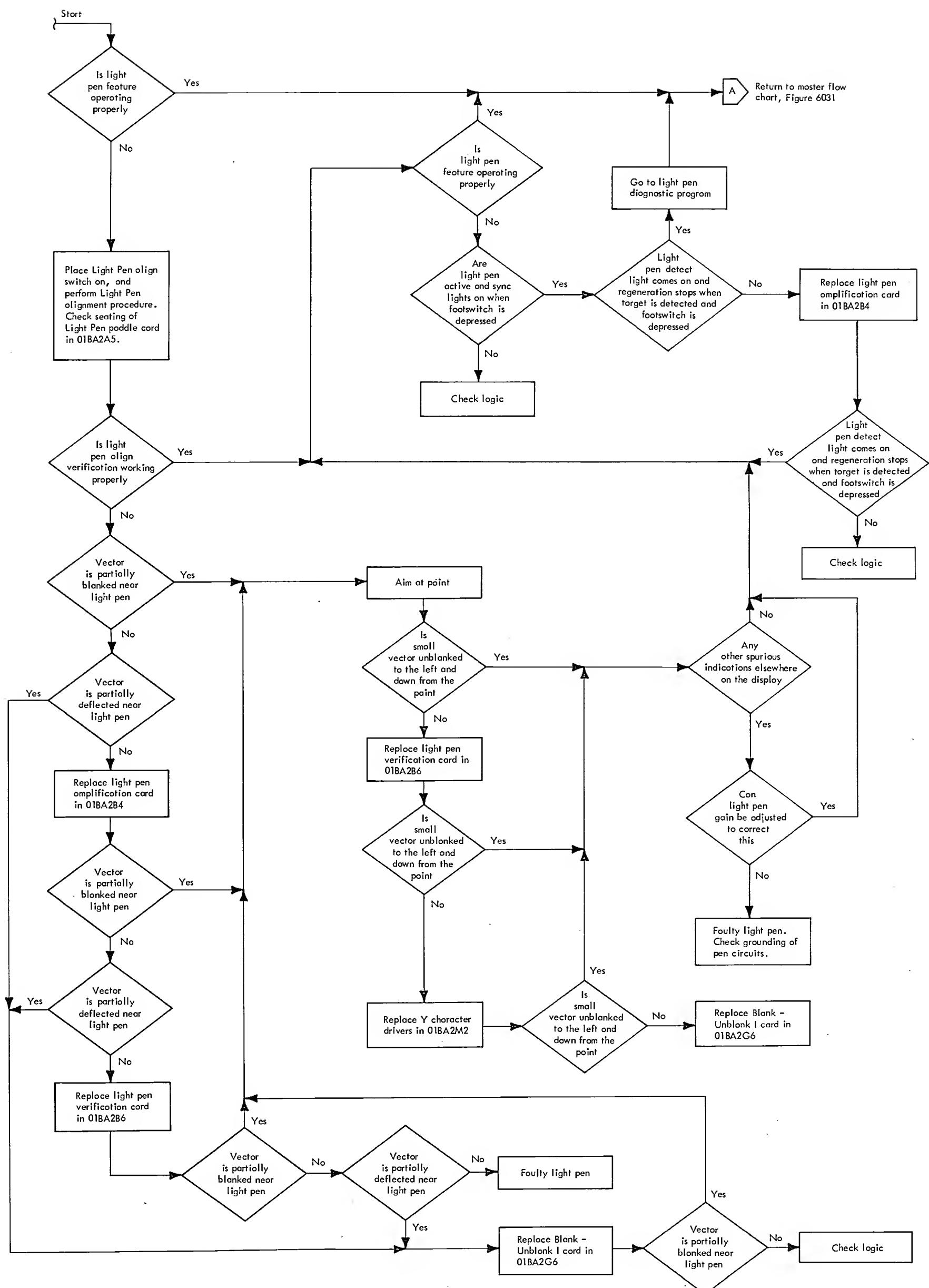


Figure 6037. Light Pen Test Flow Chart

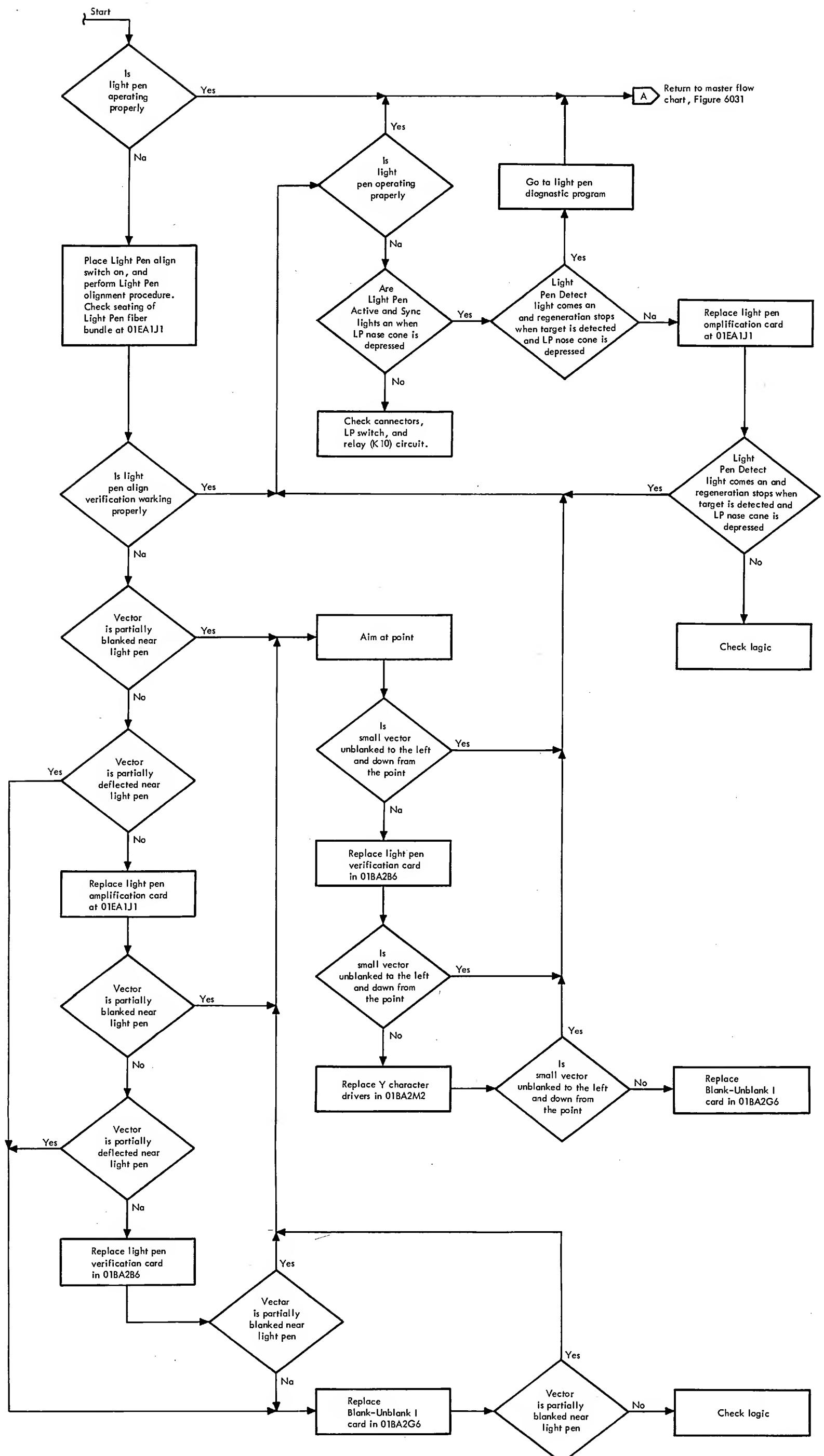


Figure 6037GDF. Light Pen Test Flow Chart (for GDF Machines)

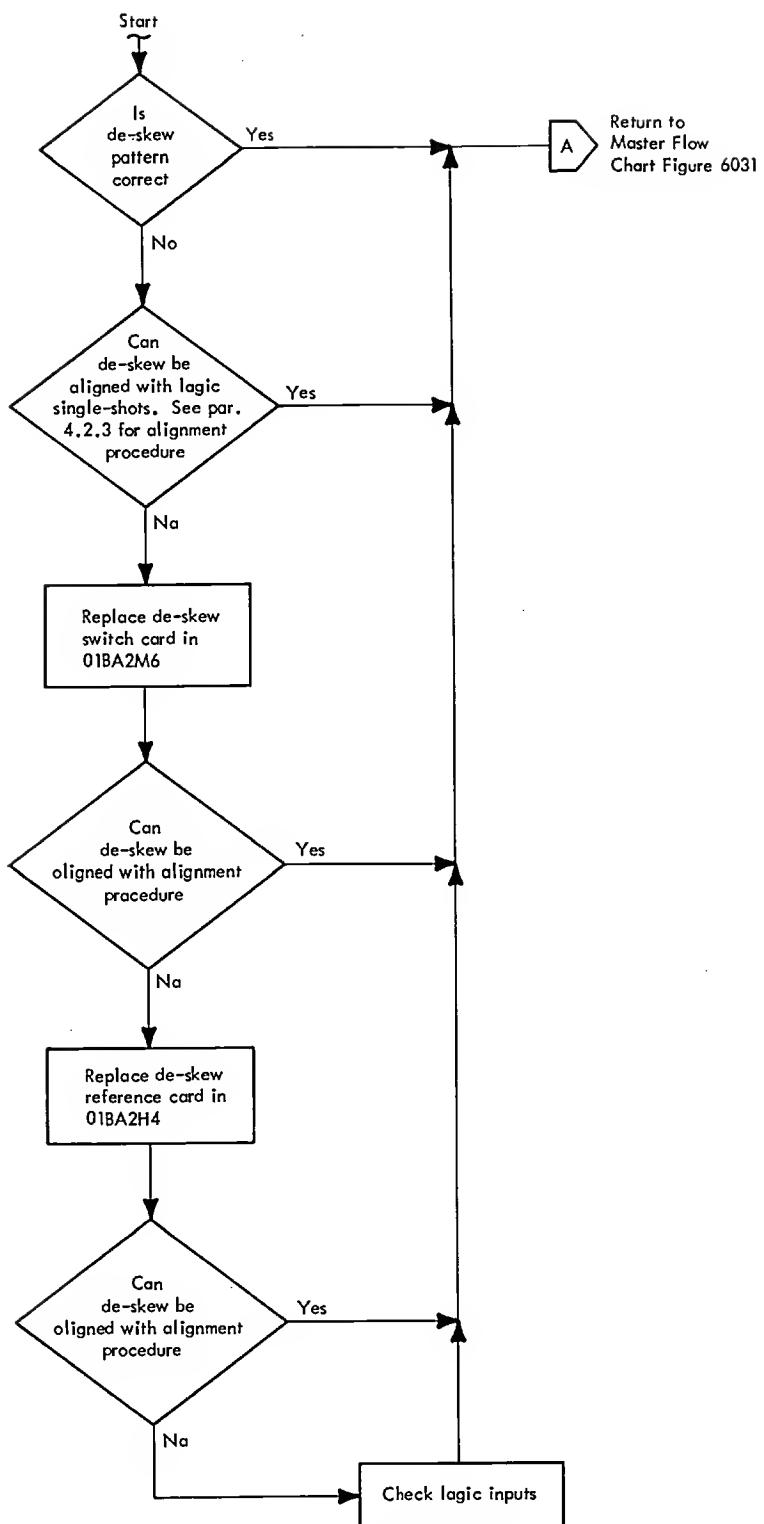


Figure 6038. De-Skew Test Flow Chart

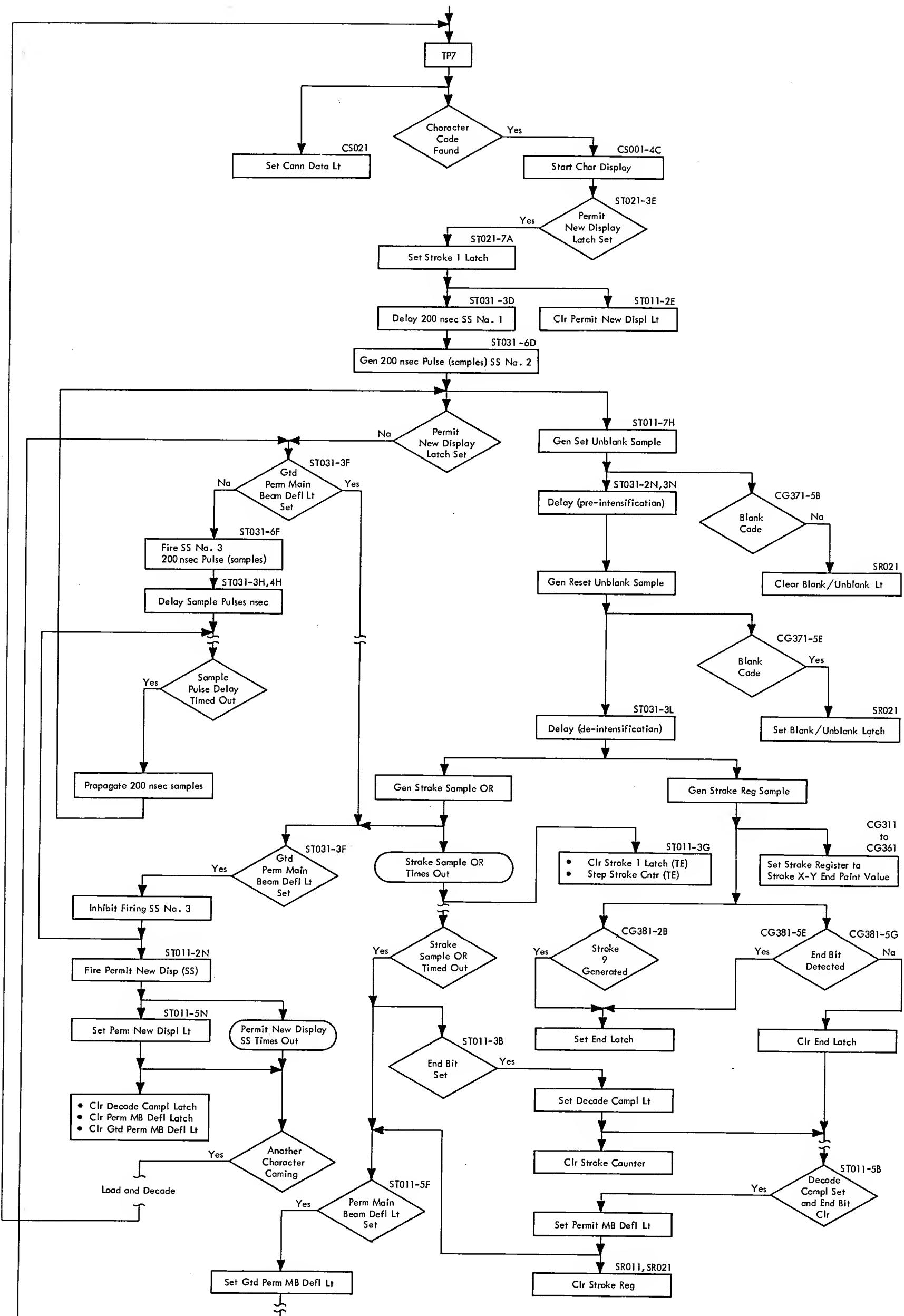


Figure 6039. Character Stroke Control, Flow Chart

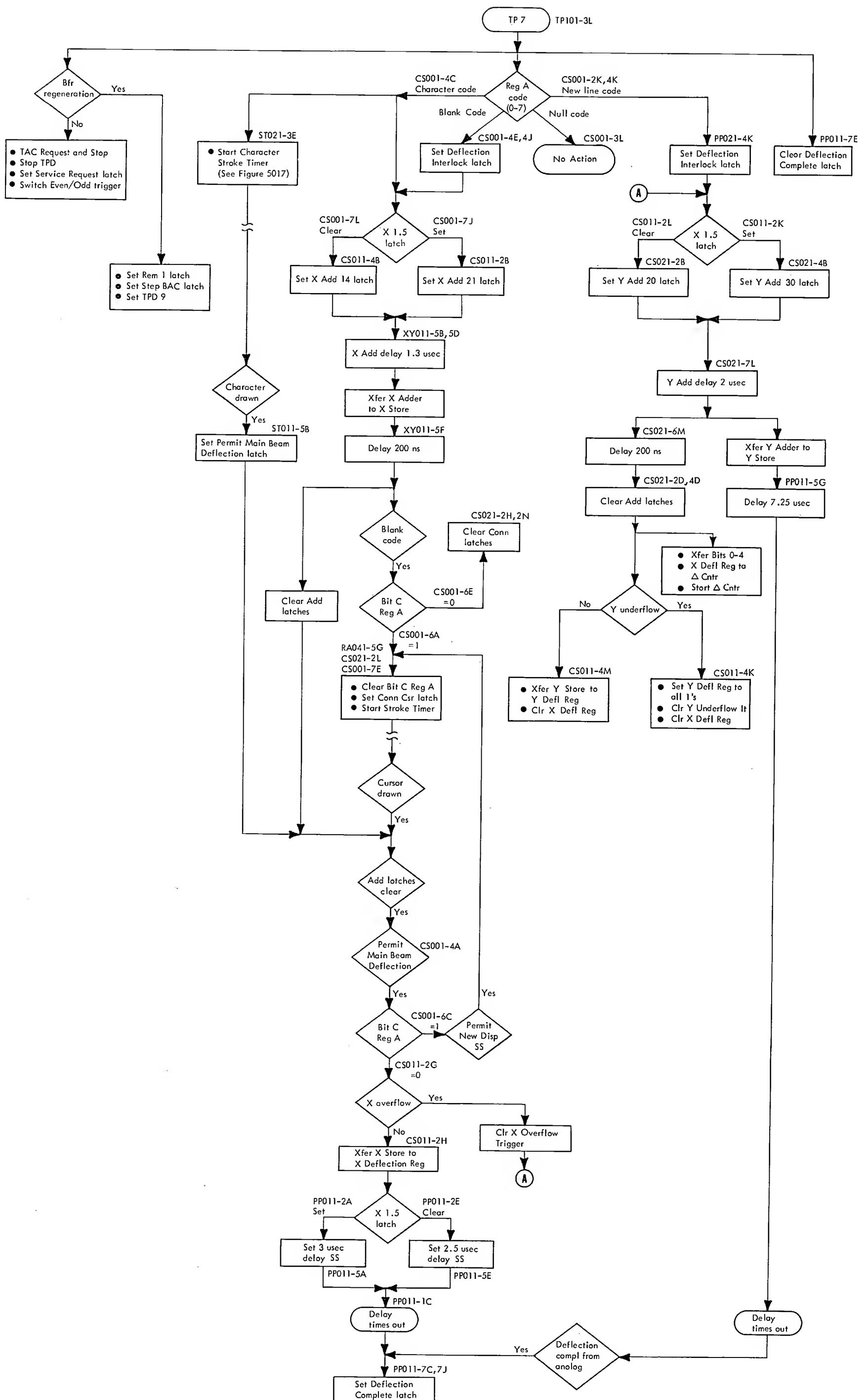


Figure 6040. Character Sequencer, Flow Chart

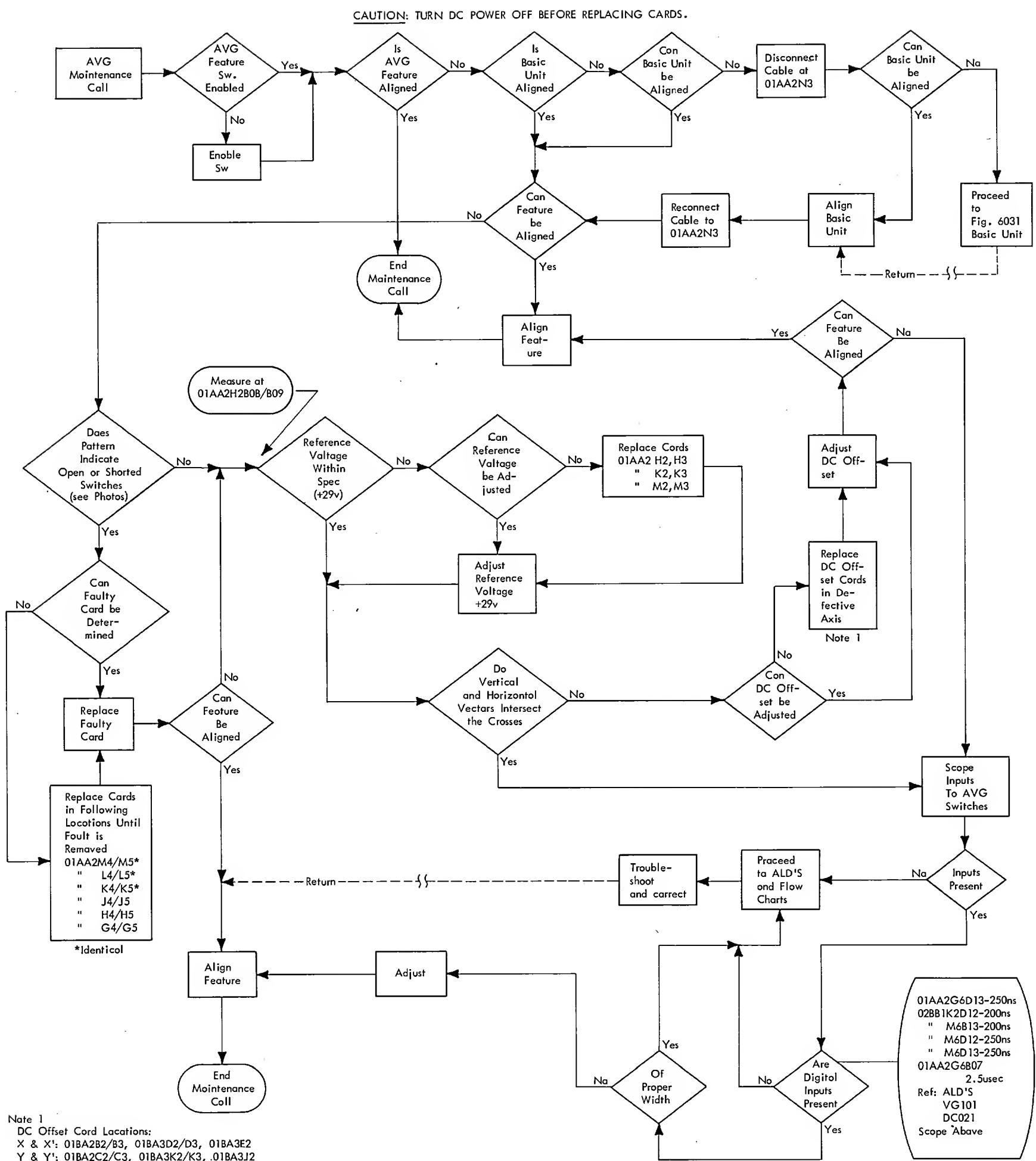


Figure 6041. Absolute Vector Graphics Diagnostic Test Flow Chart

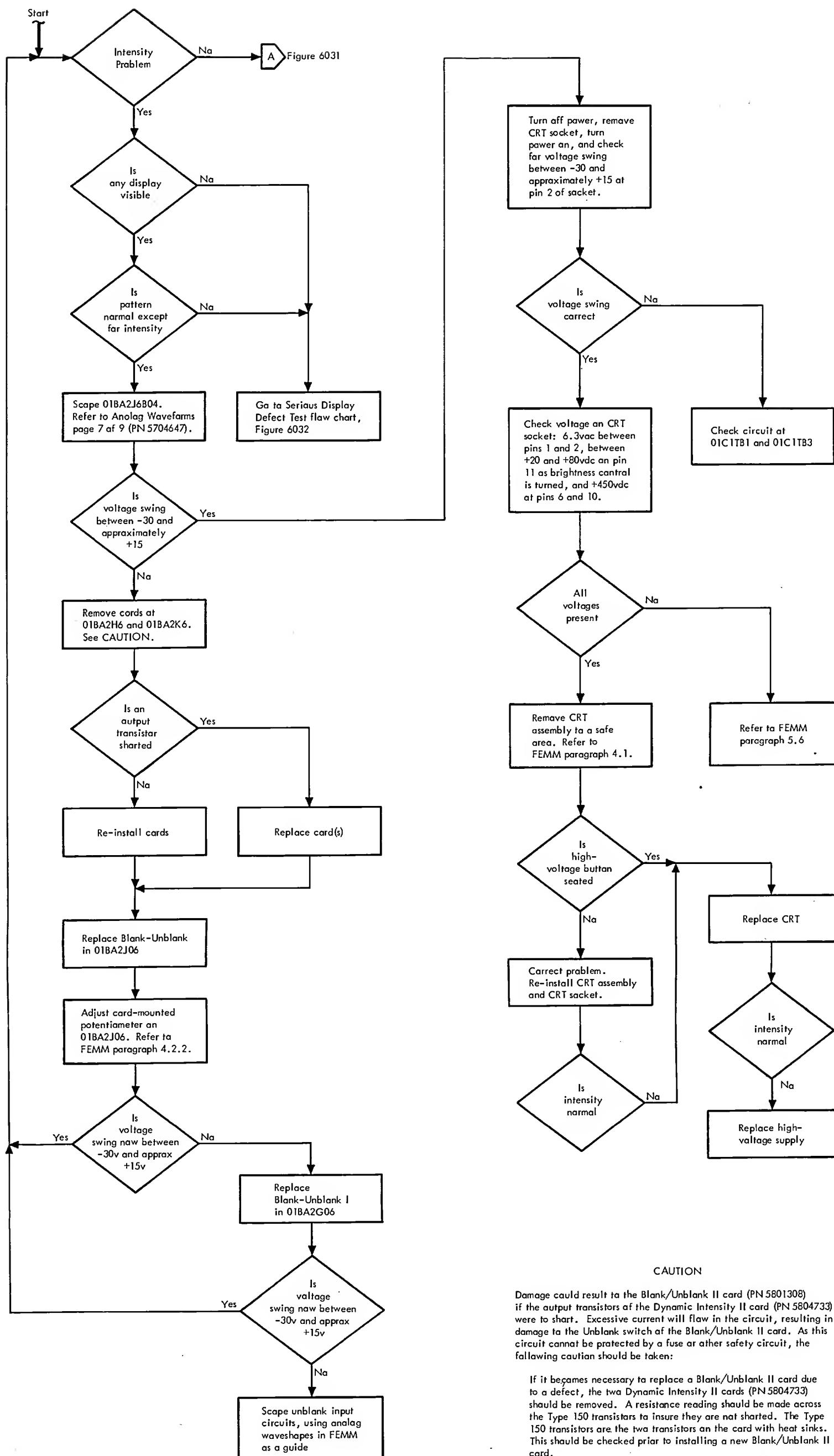


Figure 6042. Intensity Test Flow Chart

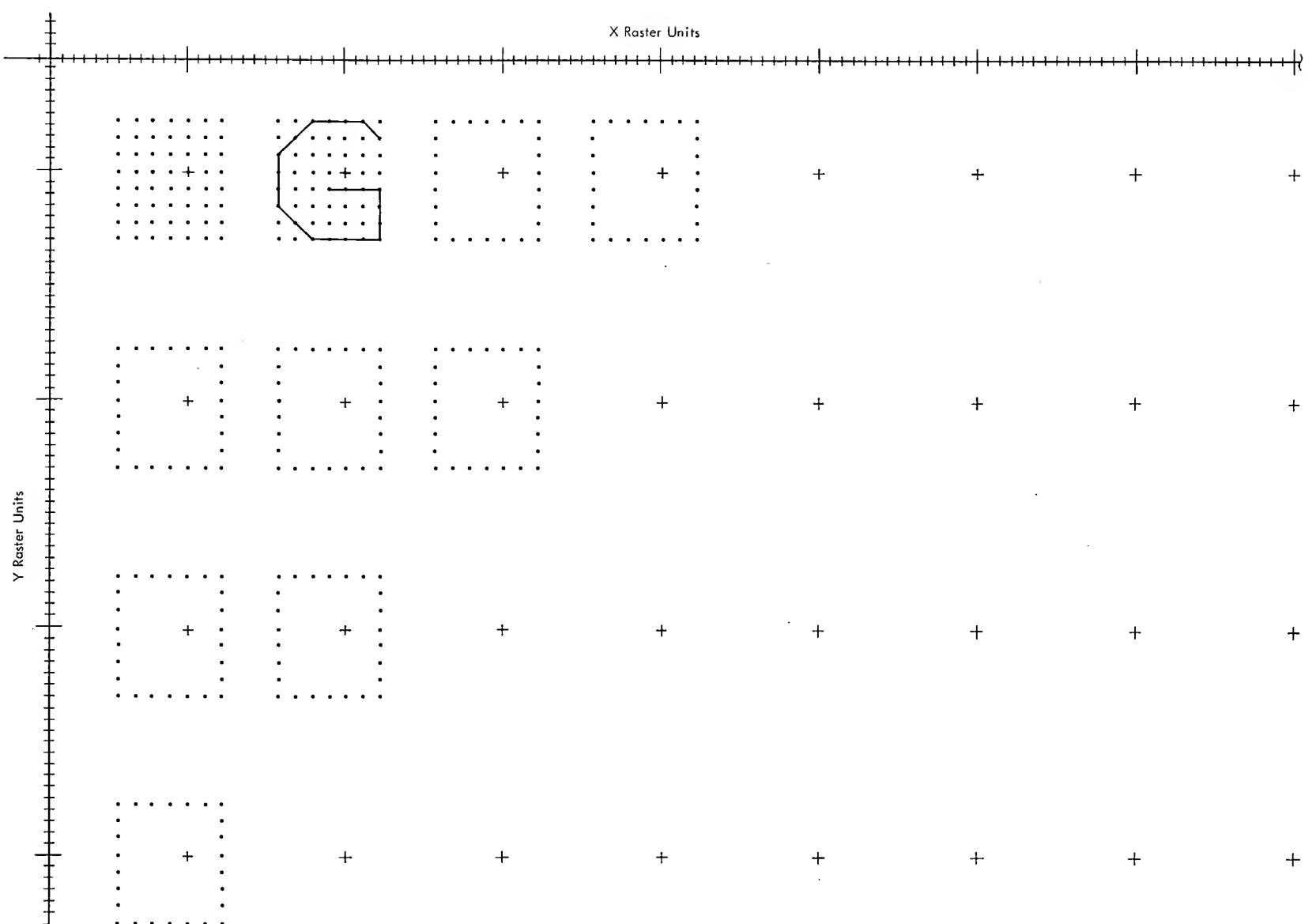


Figure 9000. Size A Characters, Display Distribution

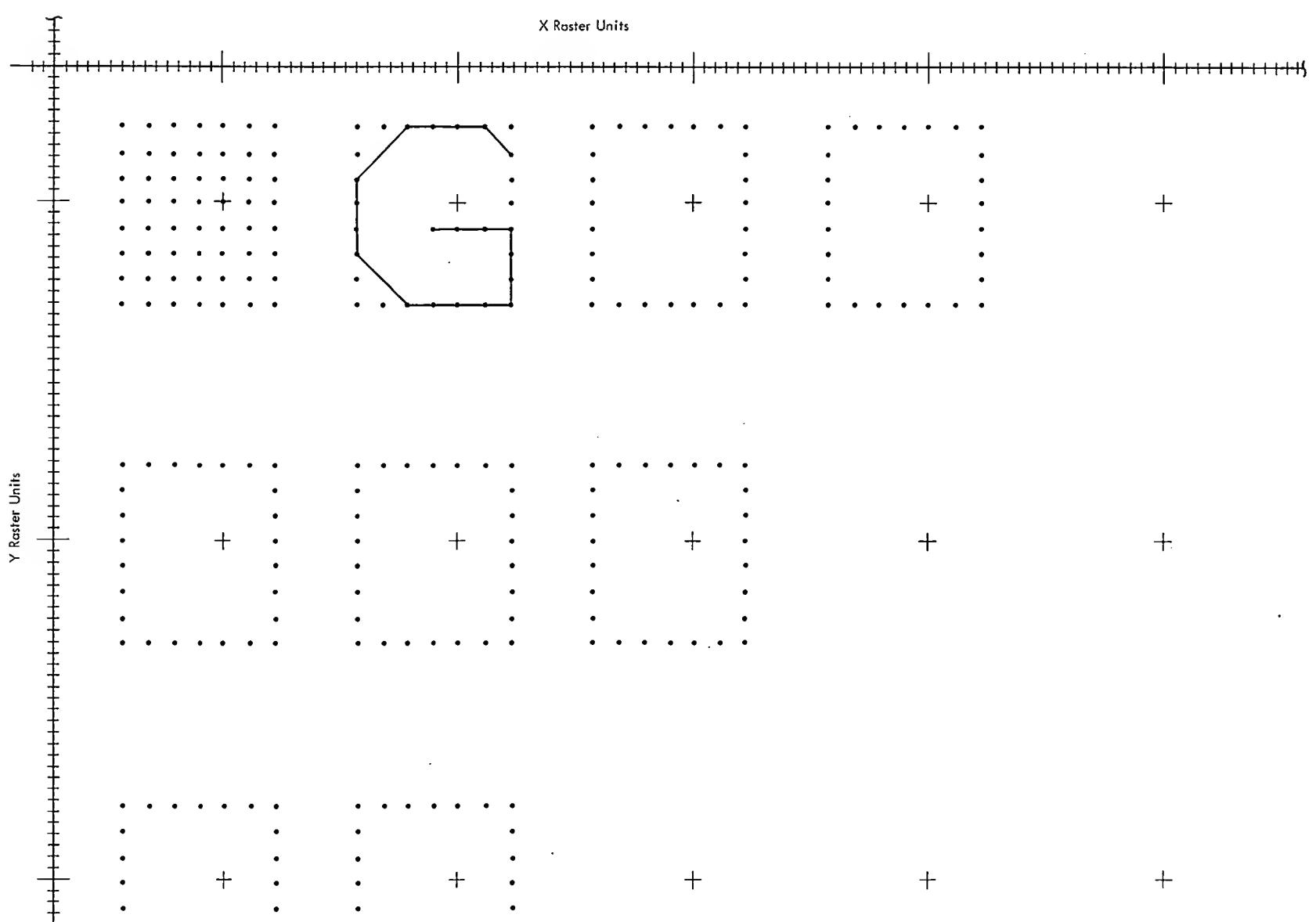


Figure 9001. Size B Characters, Display Distribution

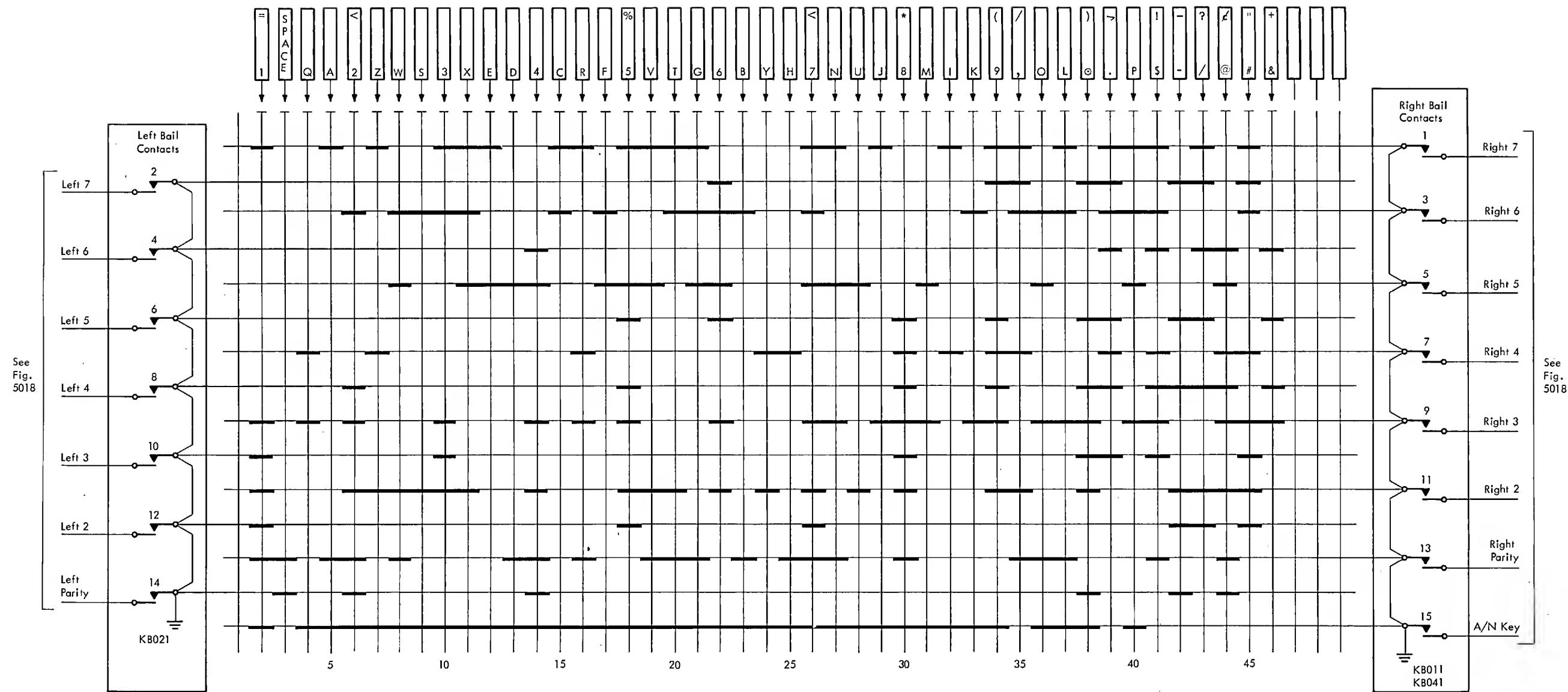


Figure 9002. A/N Keyboard, Encoding Chart

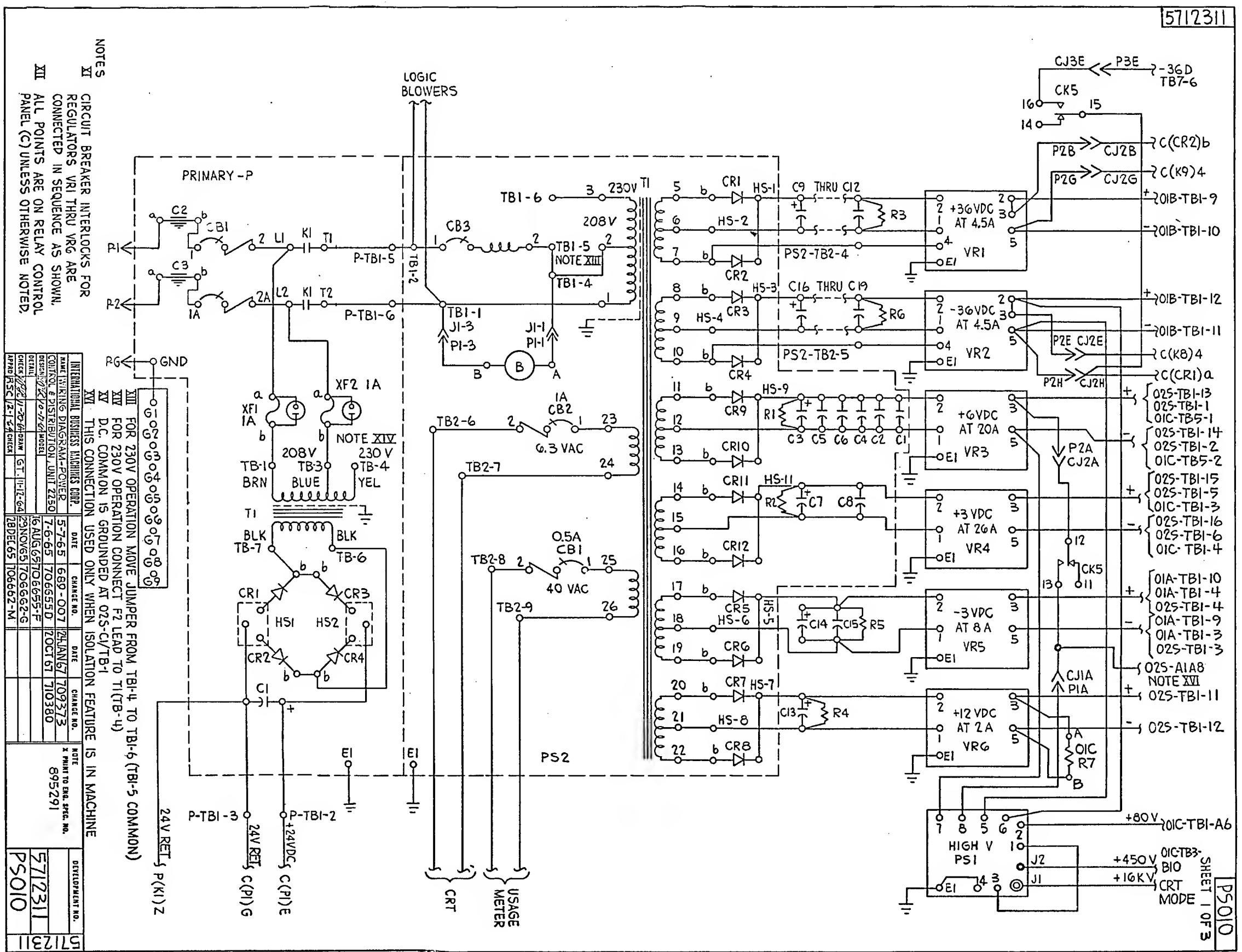
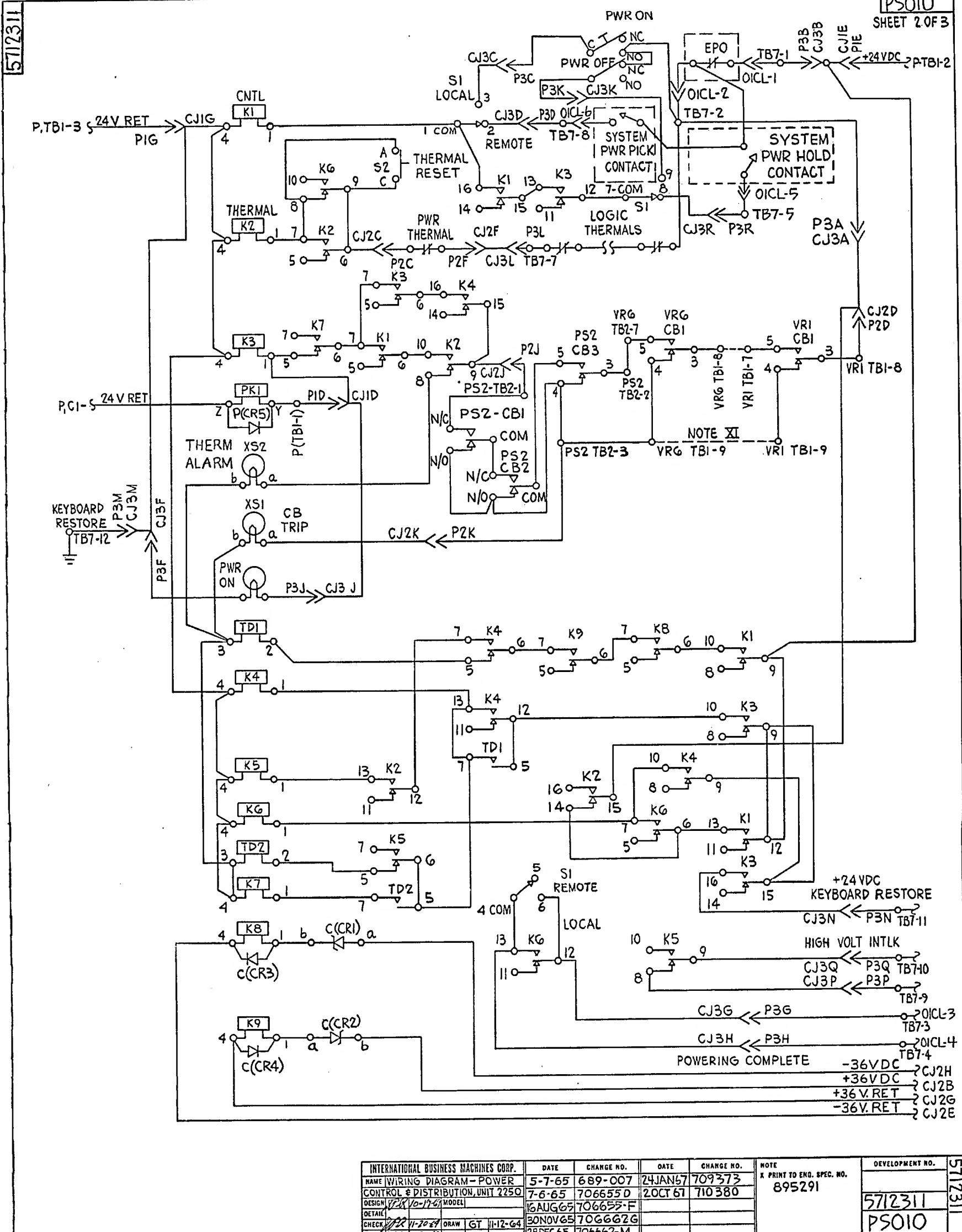


Figure 9003. Power Control and Distribution Wiring Diagram (Sheet 1 of 3)



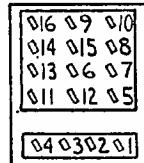
5712311

PS010

SHEET 3 OF 3

COMPONENT CHART

CODE	PART NO.	DESCRIPTION
P,CB1	5719456	CIRCUIT BREAKER 15A
P,K1	5276701	CONTACTOR
P,T1	5712337	TFMR 24VDC
P,C1	208245	CAPACITOR 2.5KMF
P,C2&C3	5214060	CAPACITOR, FEED THRU
P,CR1&CR2	598355	DIODE
P,CR3&CR4	598353	DIODE
P,F1&F2	6325	FUSE
PS2-B	5313850	BLOWER
PS2,T1	5712373	TFMR
PS2,CB1	535290	CIRCUIT BREAKER 0.5A
PS2,CB2	535292	CIRCUIT BREAKER 1.0 A
PS2,CB3	889995	CIRCUIT BREAKER 10A
PS2,CR1-8	598479	DIODE
PS2,CR9-12	127324	DIODE
PS2,C1-C6	5261057	CAPACITOR 17KMF
PS2,C7-C8	5213162	CAPACITOR 74KMF
C9-12,C16-19	208232	CAPACITOR 3.5KMF
C13	5261077	CAPACITOR 8.9KMF
C14,C15	5261061	CAPACITOR 24KMF
PS2,R1	5261899	RESISTOR 100Ω 5W, ASM
PS2,R2	5712377	RESISTOR 70Ω 5W, ASM
R3,R6	5712378	RESISTOR 600Ω 10W, ASM
R4	5261077	RESISTOR 1.1KΩ 2W, ASM
R5	5261935	RESISTOR 330Ω 2W, ASM
PS1	5712339	H.V. PWR SUPPLY(WD 5712340)
VR1&2	5239250	VOLT REG 36V-4A (WD 5239251)
VR3	5712359	VOLT REG 6V-20A (WD 5712372)
VR4	5712360	VOLT REG 3V-26A (WD 5712361)
VR5	5712363	VOLT REG 3V-8A (WD 5712364)
VR6	5712365	VOLT REG 12V-2A (WD 5712371)
K1-K7	5318968	RELAY 24VDC
TD1	5712326	TIME DELAY RELAY 25 SEC
S1	5213522	ROTARY SWITCH
S2	215679	PUSH BUTTON SWITCH
X51&X52	5372847	LAMP
C(CR1&CR2)	369129	ZENER DIODE 30V
P(CR5)	599917	AM DIODE ASM
C(CR3&CR4)	2111232	AM DIODE
PWR THRML	594986	THERMAL SWITCH
TD2	5712399	TIME DELAY RELAY 10 SEC
K8&K9	5318969	RELAY 6VDC



4 POS RELAY  
WIRING SIDE  
K1 - K9

INTERNATIONAL BUSINESS MACHINES CORP.	DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME WIRING DIAGRAM-PWR	5-7-65	689-007	24JAN67	709373	X PRINT TO ENG. SPEC. NO. 895291	
CONTROL & DISTRIBUTION	7-6-65	706655D	20CT67	710380		
DESIGN DRAFTED 1/26/65 MODEL			16AUG65	706555-F		
DETAIL			29NOV65	706662-G		
CHECK 1/26/65 DRAW			28DEC65	706662-M		
APPRO 1/26/65 CHECK						

•Figure 9003. Power Control and Distribution Wiring Diagram (Sheet 3 of 3)

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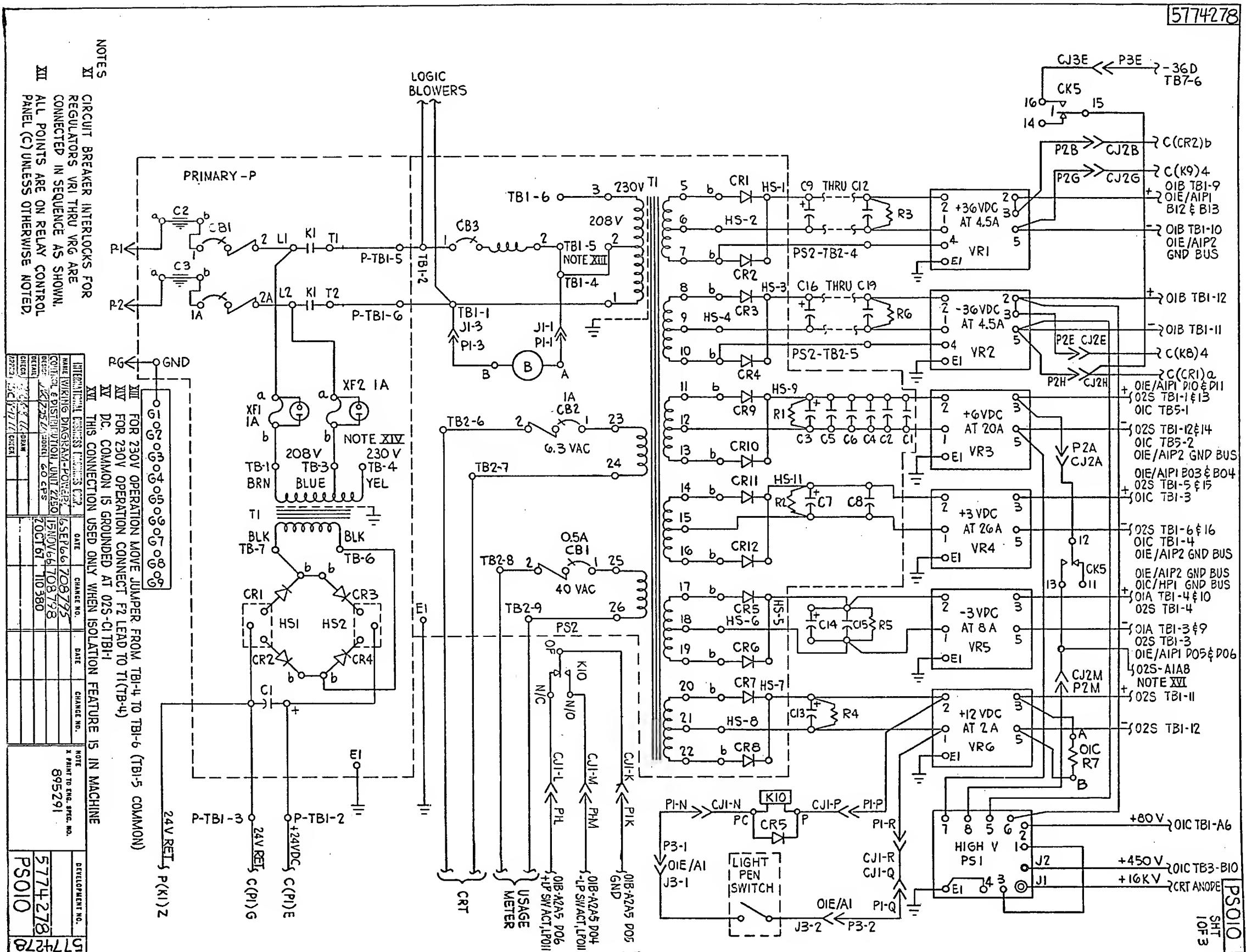


Figure 903GDF. Power Control and Distribution Wiring Diagram (for GDF Machines) (Sheet 1 of 3)

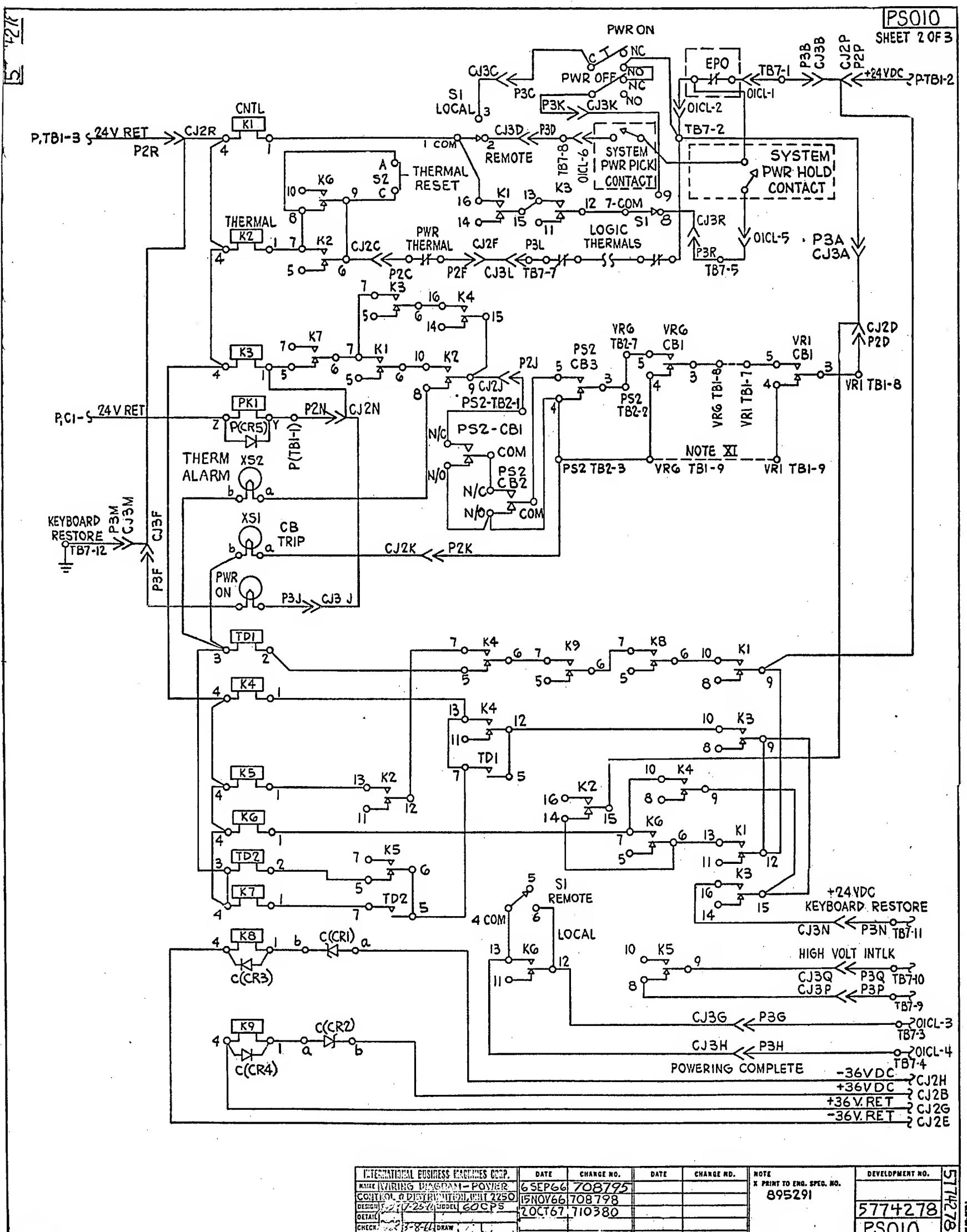


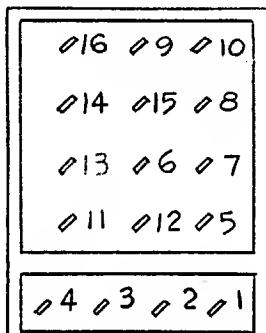
Figure 8003-CDE Power Control and Distribution Wiring Diagram (for CDE Machines) (Sheet 2 of 3)

E 425 PS010

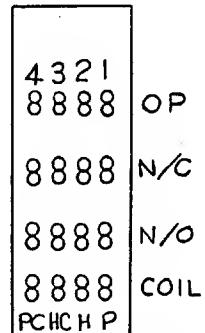
SHEET 3 OF 3

COMPONENT CHART

CODE	PART NO.	DESCRIPTION
P,CB1	5719456	CIRCUIT BREAKER 15A
P,K1	5276701	CONTACTOR
P,PT1	5712337	TFMR 24VDC
P,C1	208245	CAPACITOR 2.5KMF
P,C2&C3	5214060	CAPACITOR, FEED THRU
P,CR1&CR2	593355	DIODE
P,CR3&CR4	593353	DIODE
P,F1&F2	6325	FUSE
PS2-B	5313850	BLOWER
PS2,PT1	5712373	TFMR
PS2,CB1	535290	CIRCUIT BREAKER 0.5A
PS2,CB2	535292	CIRCUIT BREAKER 1.0A
PS2,CB3	539995	CIRCUIT BREAKER 10A
PS2,CR1-C	593479	DIODE
PS2,CR9-12	127324	DIODE
PS2,C1-C6	5261057	CAPACITOR 17KMF
PS2,C7-C8	5213162	CAPACITOR 74KMF
C9-C16-19	208232	CAPACITOR 3.5KMF
C13	5261077	CAPACITOR 8.9KMF
C14,C15	5261067	CAPACITOR 24KMF
PS2,R1	5261039	RESISTOR 100Ω 5W, ASM
PS2,R2	5712377	RESISTOR 70Ω 5W, ASM
R3,R6	5712378	RESISTOR 600Ω 10W, ASM
R4	5261077	RESISTOR 1.1KΩ 2W, ASM
R5	5261035	RESISTOR 330Ω 2W, ASM
PS1	5712339	H.V. PWR SUPPLY(WD 5712340)
VR1 & 2	5239250	VOLT REG 36V-4A (WD 5239251)
VR3	5712359	VOLT REG 6V-20A (WD 5712372)
VR4	5712360	VOLT REG 3V-26A (WD 5712361)
VR5	5712363	VOLT REG 3V-8A (WD 5712364)
VR6	5712365	VOLT REG 12V-2A (WD 5712371)
K1-K7	5310940	RELAY 24VDC
TD1	5712326	TIME DELAY RELAY 25 SEC
S1	5213522	ROTARY SWITCH
S2	215679	PUSH BUTTON SWITCH
X51&X52	5372247	LAMP
C(CR1&CR2)	369129	ZENER DIODE 30V
P(CR5)	5261017	AM DIODE ASM
(CC1&CC2)	2111232	AM DIODE
PWR TIRML	594906	THERMAL SWITCH
TD2	5712399	TIME DELAY RELAY 10 SEC
K8&K9	5213969	RELAY 6VDC
K10	769095	WIRE CONTACT RELAY
C(CR5)	5368225	DD DIODE ASM



4 POS. RELAY  
WIRING SIDE  
K1 - K9



WIRING SIDE  
K10

INTERNATIONAL BUSINESS MACHINES CORP.	DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME WIRING DIAGRAM-PWY	6SEP66	708795			X PRINT TO ENG. SPEC. NO. 895291	
CONTROL & DISTRIBUTION	15NOV66	708798				5774278
DESIGN 7/25/66 MODEL	20CT67	710380				PS010
DETAIL						8/24/15
CHECK 13826 DRAW						
APPRD KSC 8/12/66 CHECK						

•Figure 9003GDF. Power Control and Distribution Wiring Diagram (for GDF Machines)(Sheet 3 of 3)

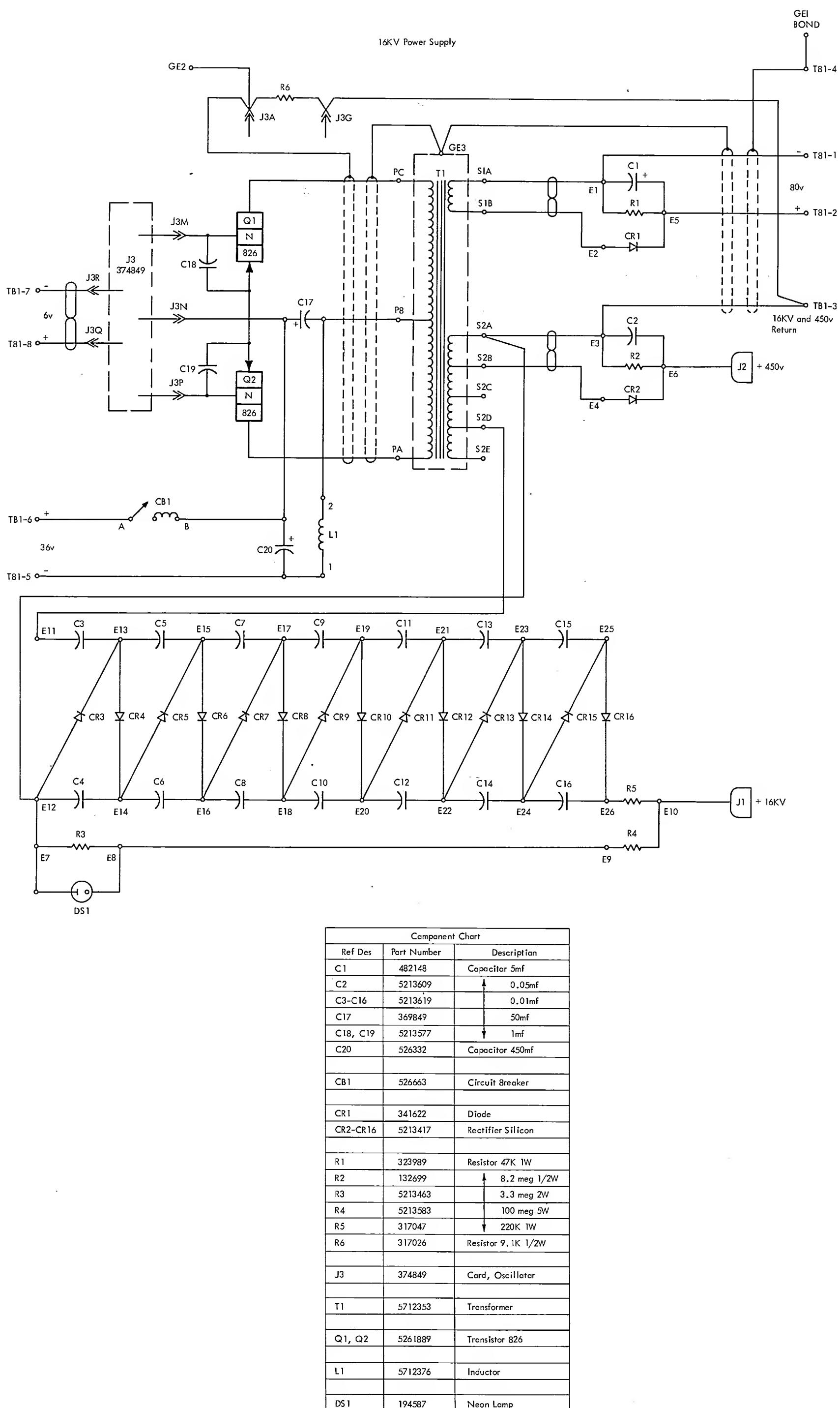


Figure 9004. High Voltage Power Supply Wiring Diagram

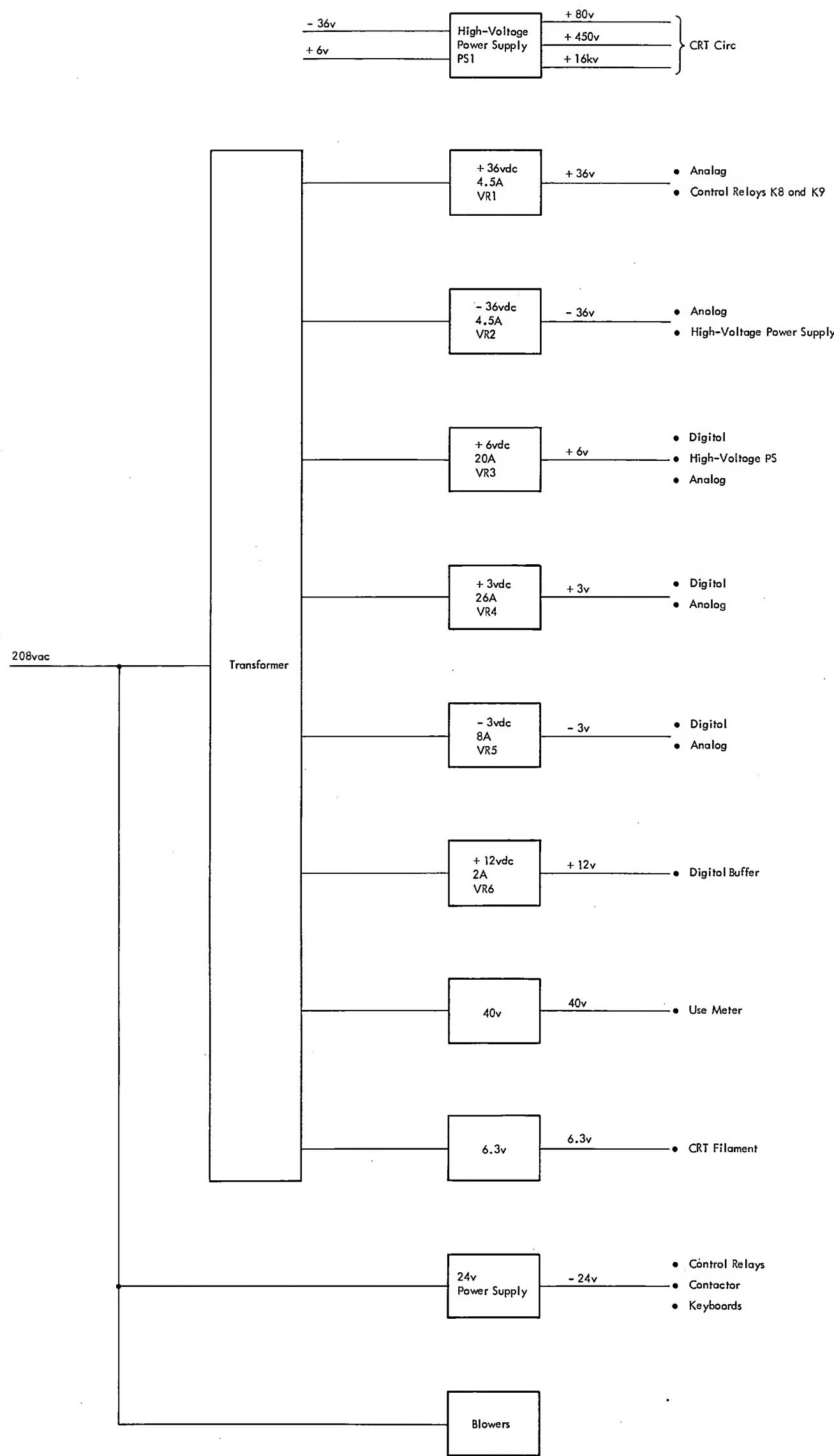


Figure 9005. Power Distribution

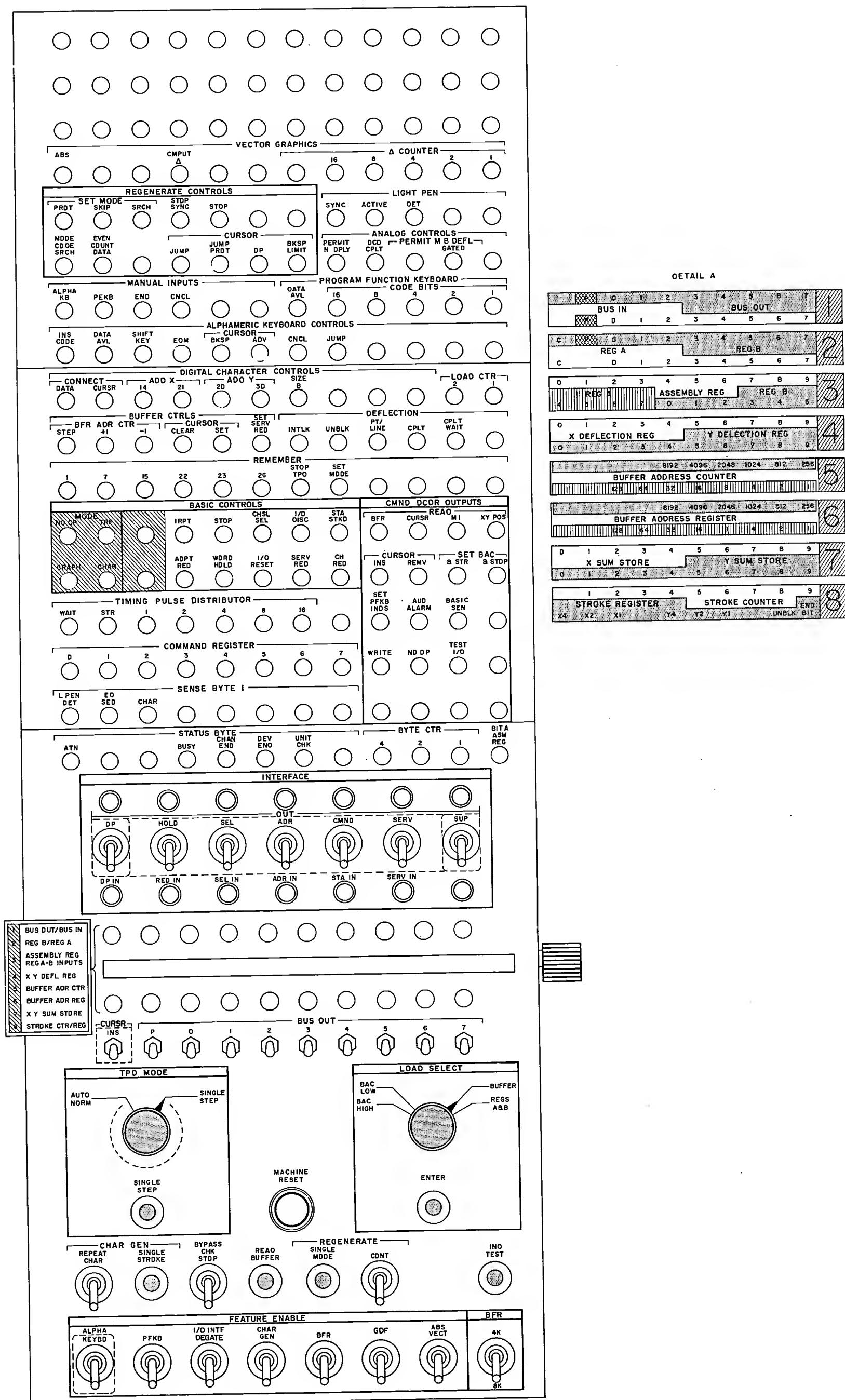


Figure 9006. 2250 CE Panel



Figure 9007. Character Stroke, Timing Chart

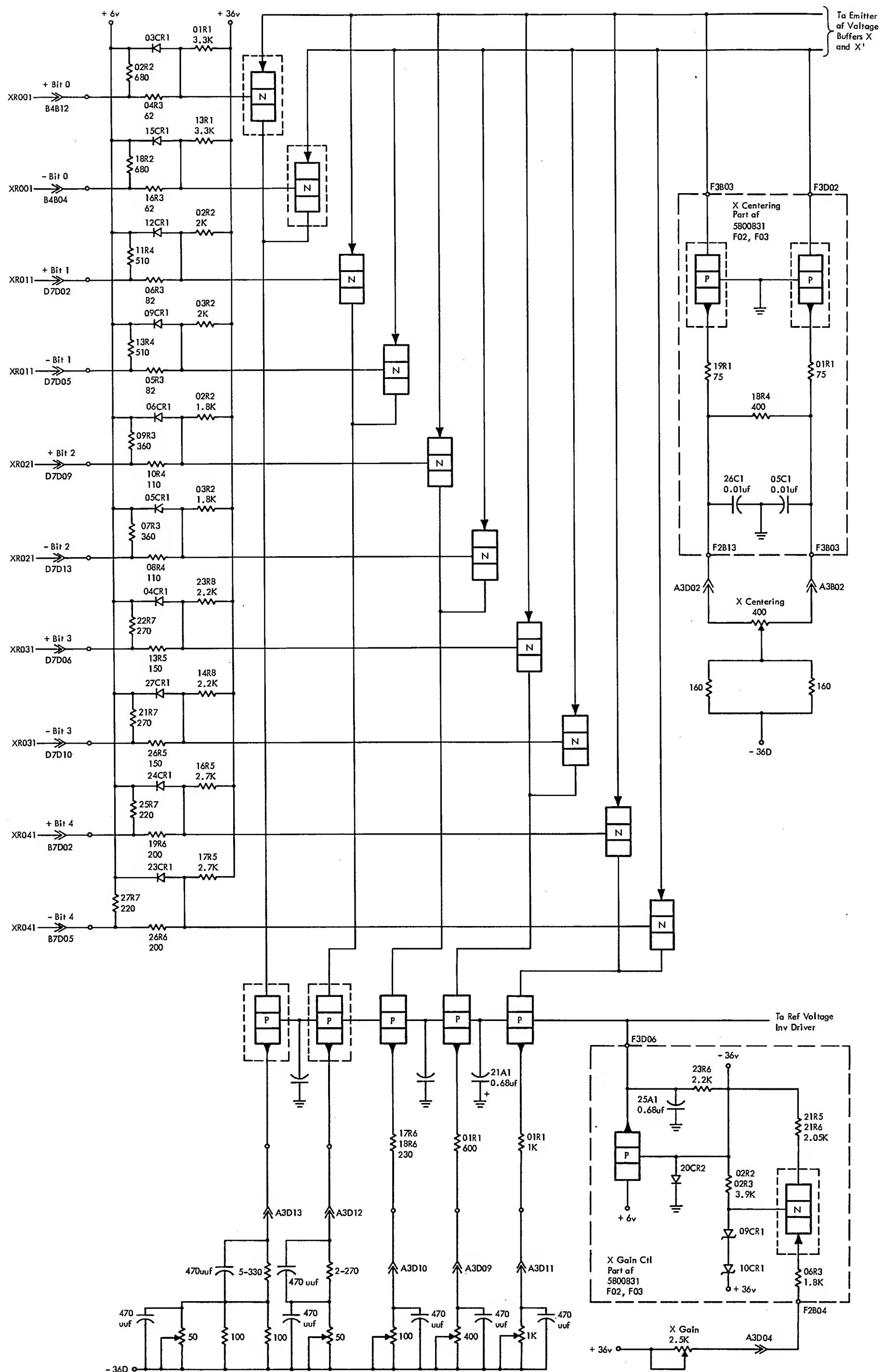


Figure 9008. Main Deflection, High-Order Decoding and Control, Wiring Diagram

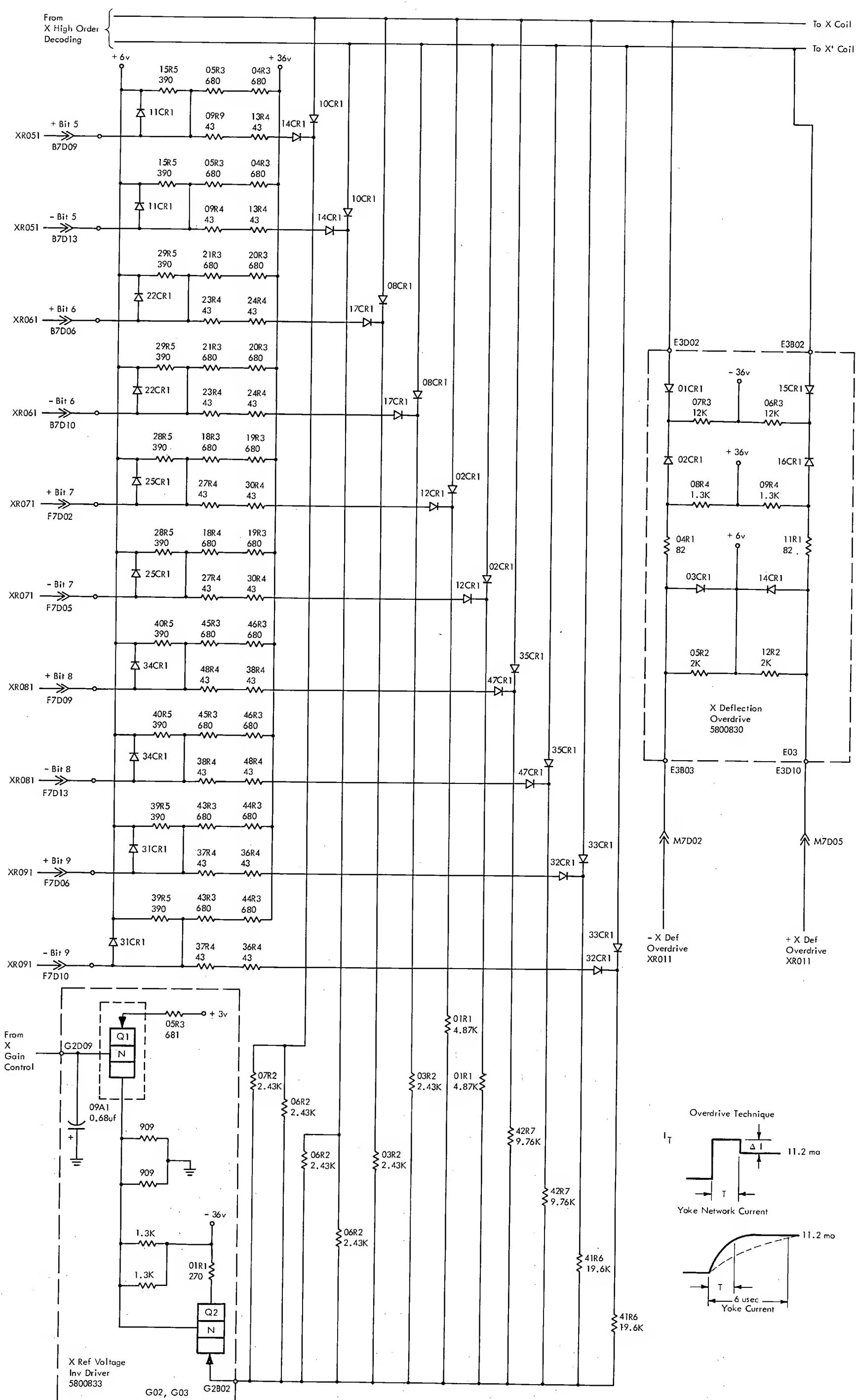
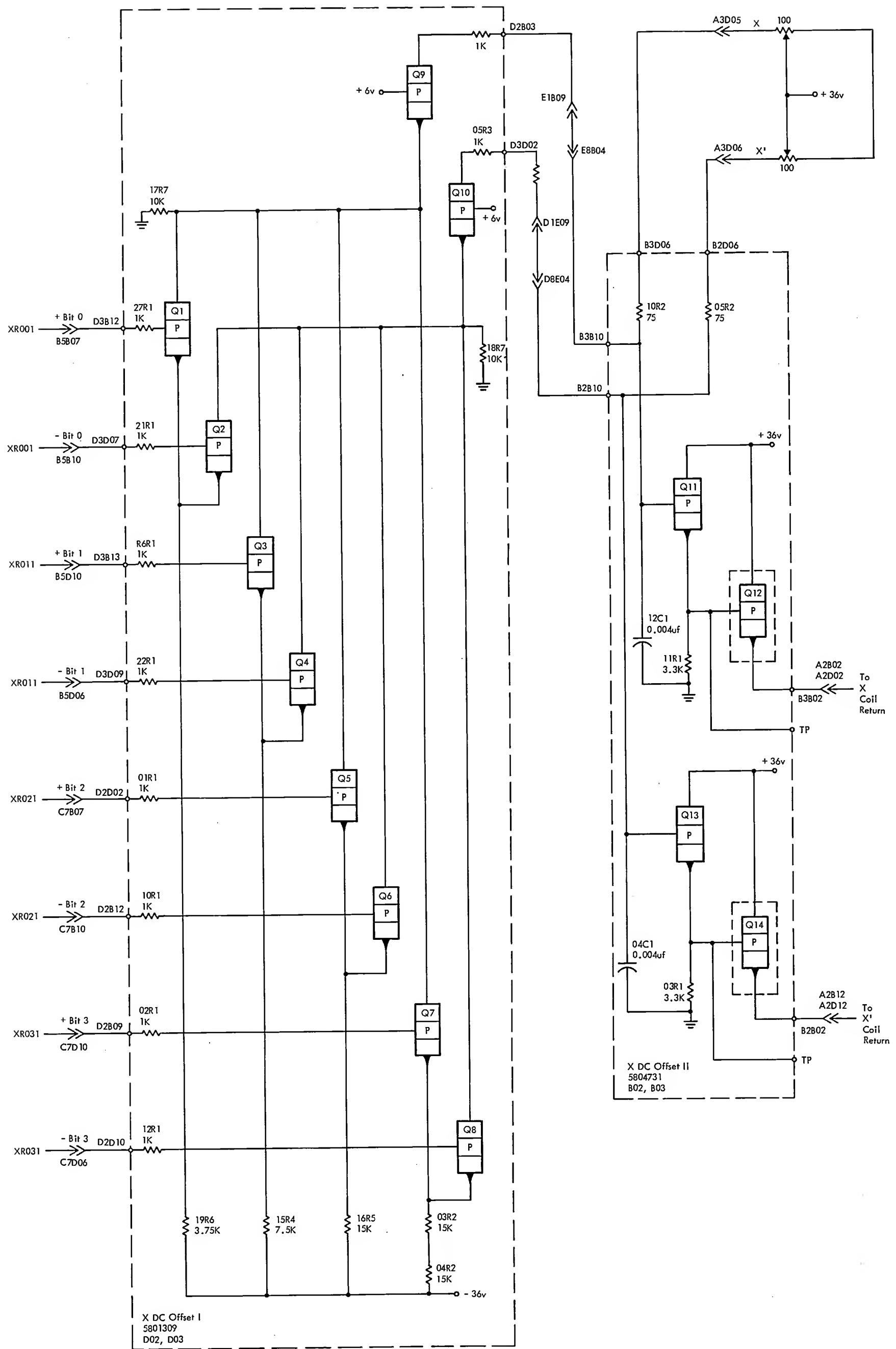


Figure 9009. Main Deflection, Low-Order Decoding and Control, Wiring Diagram



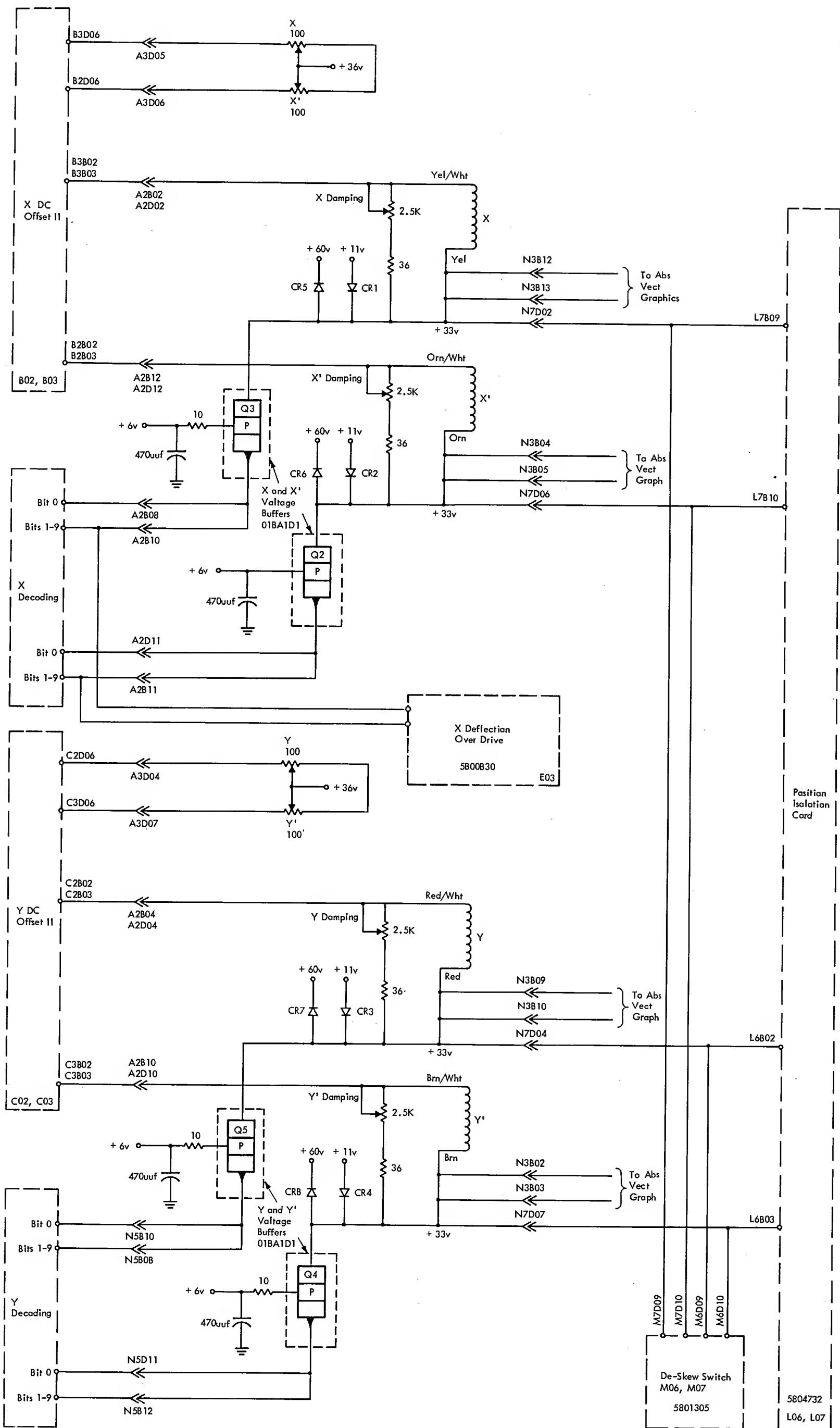


Figure 9011. Main Deflection, Yoke Control Circuits, Wiring Diagram

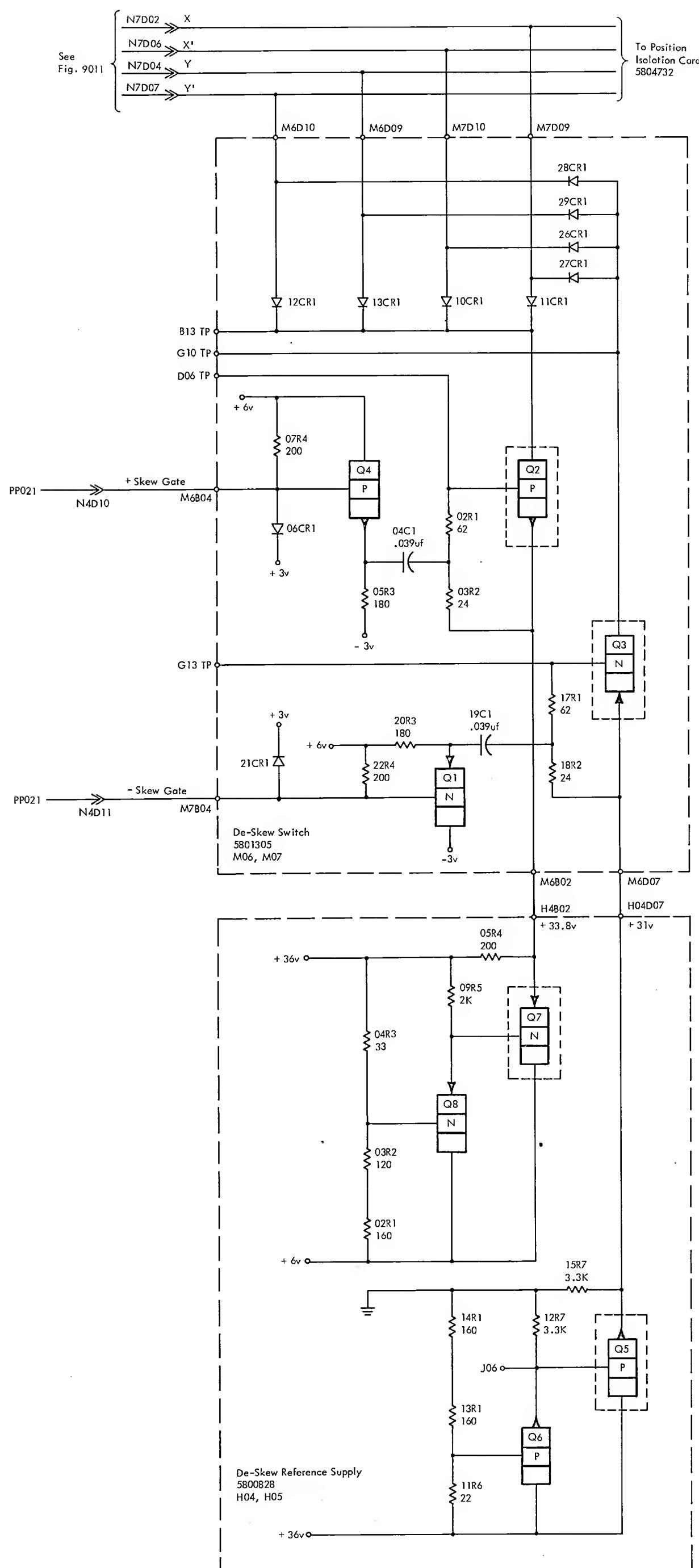


Figure 9012. Main Deflection, De-Skew Control Circuits, Wiring Diagram

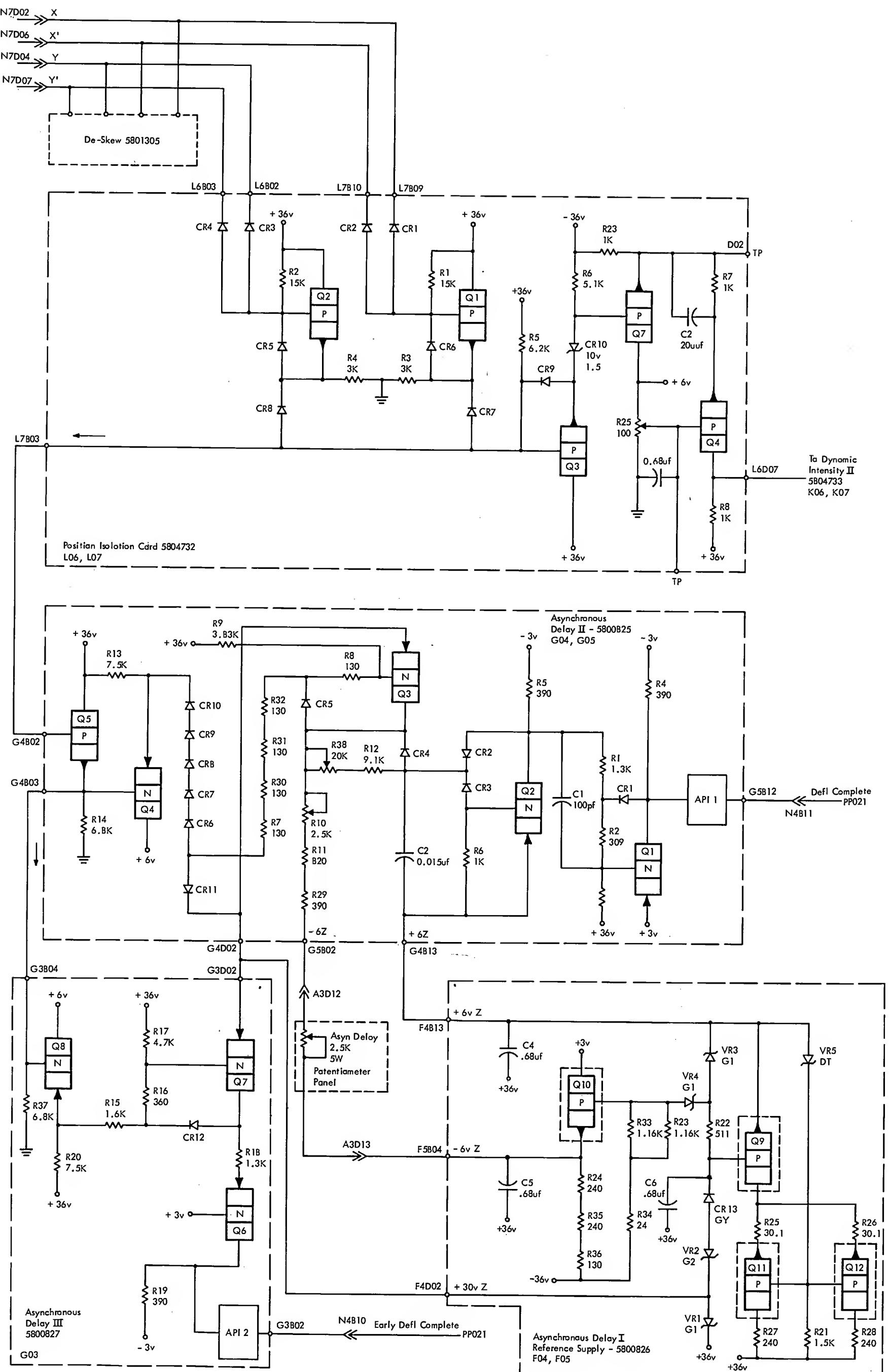


Figure 9013. Main Deflection, Position Isolation and Asynchronous Delay Circuits, Wiring Diagram

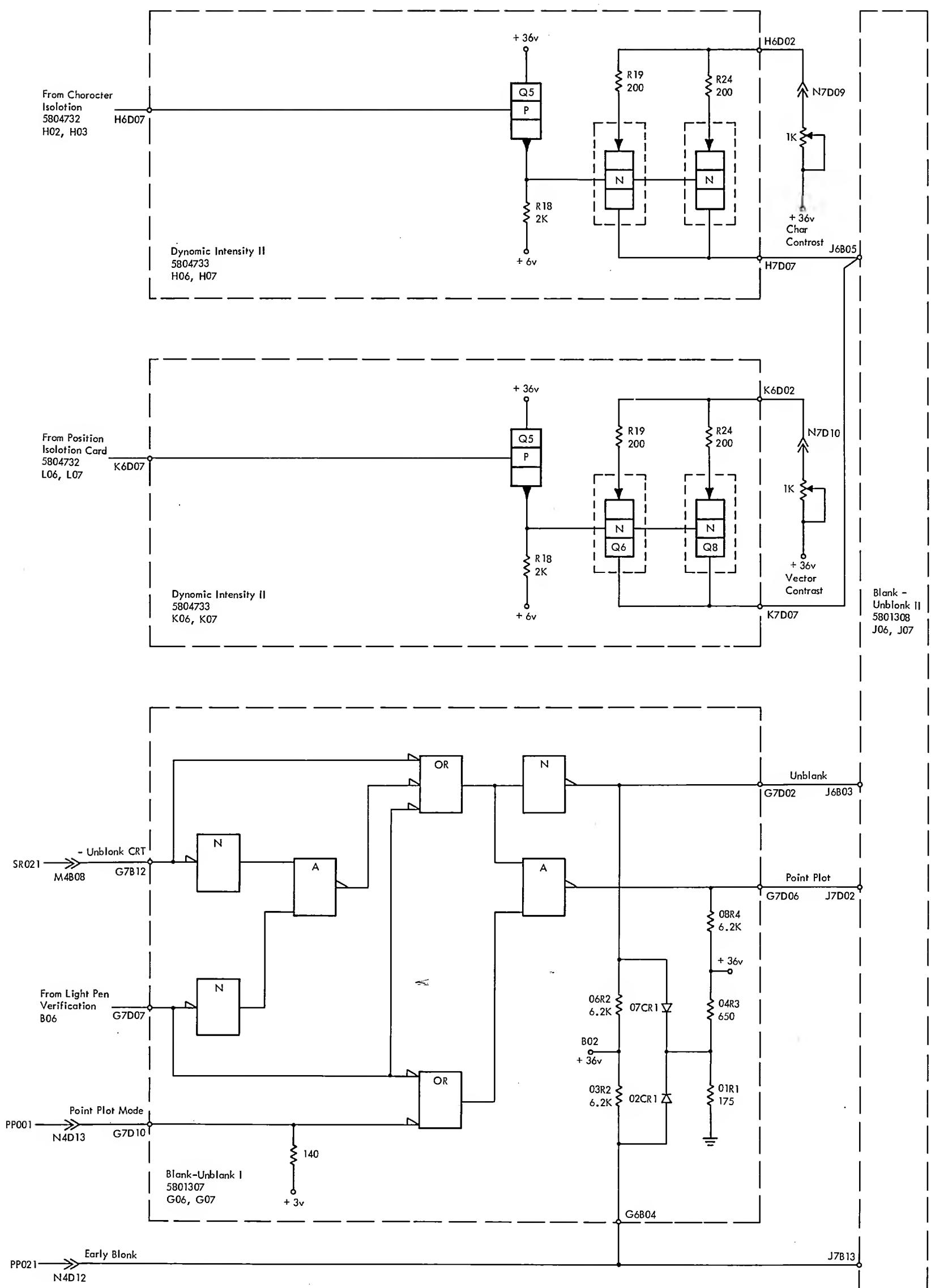


Figure 9014. Dynamic Intensity I and Blank-Unblank I Circuits, Wiring Diagram

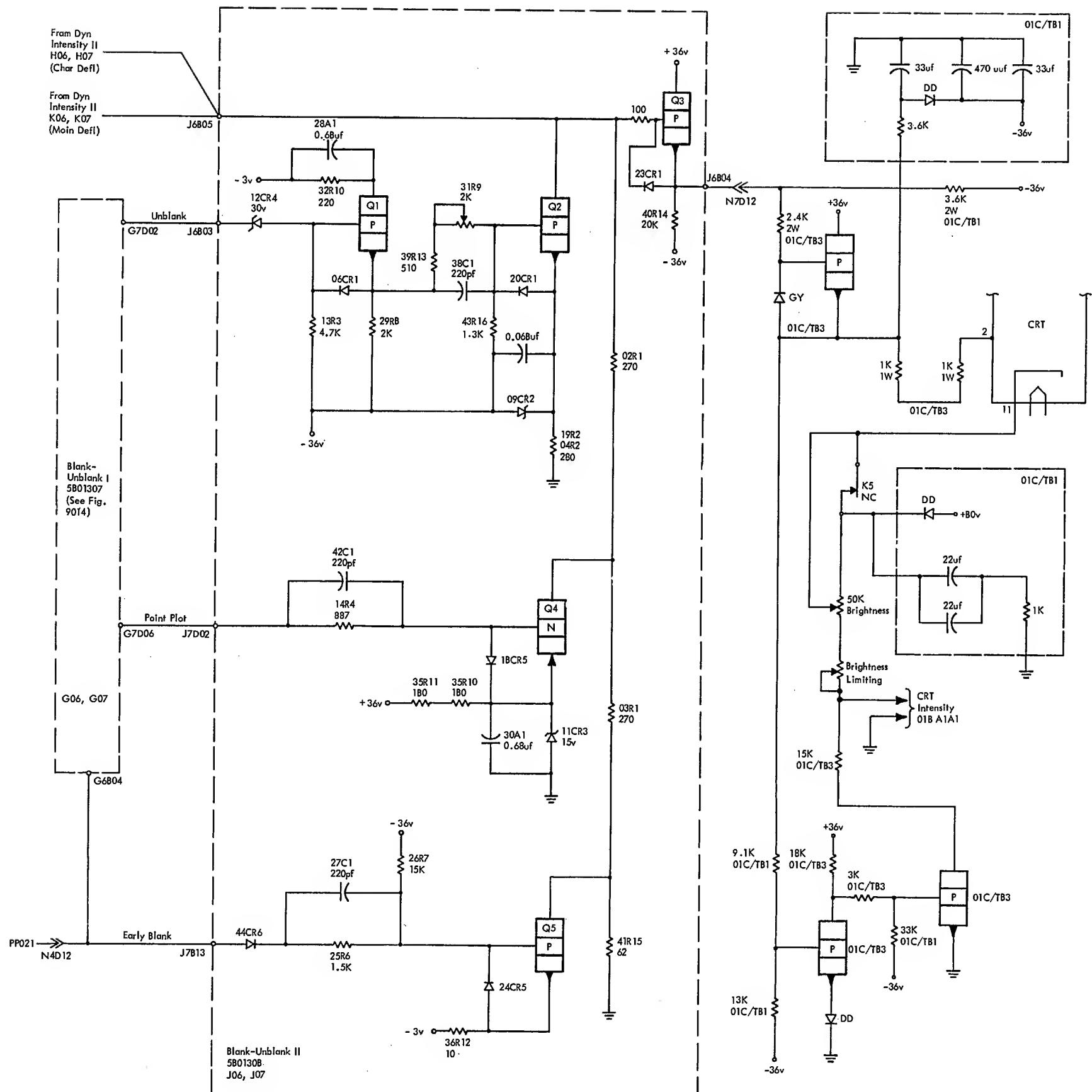


Figure 9015. Dynamic Intensity Blank-Unblank II Circuits, Wiring Diagrams

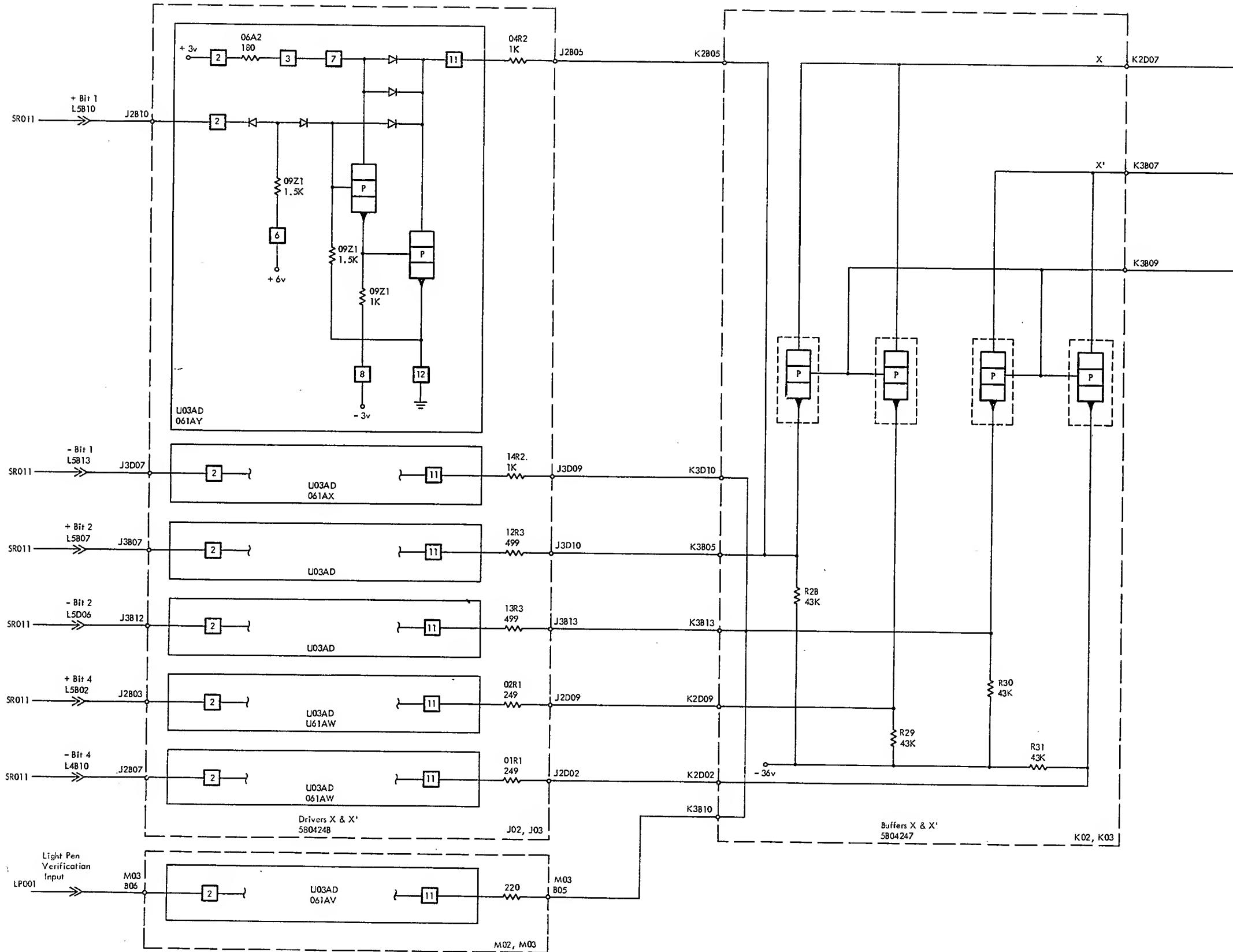


Figure 9016. Character Deflection, Decode Circuits, Wiring Diagrams

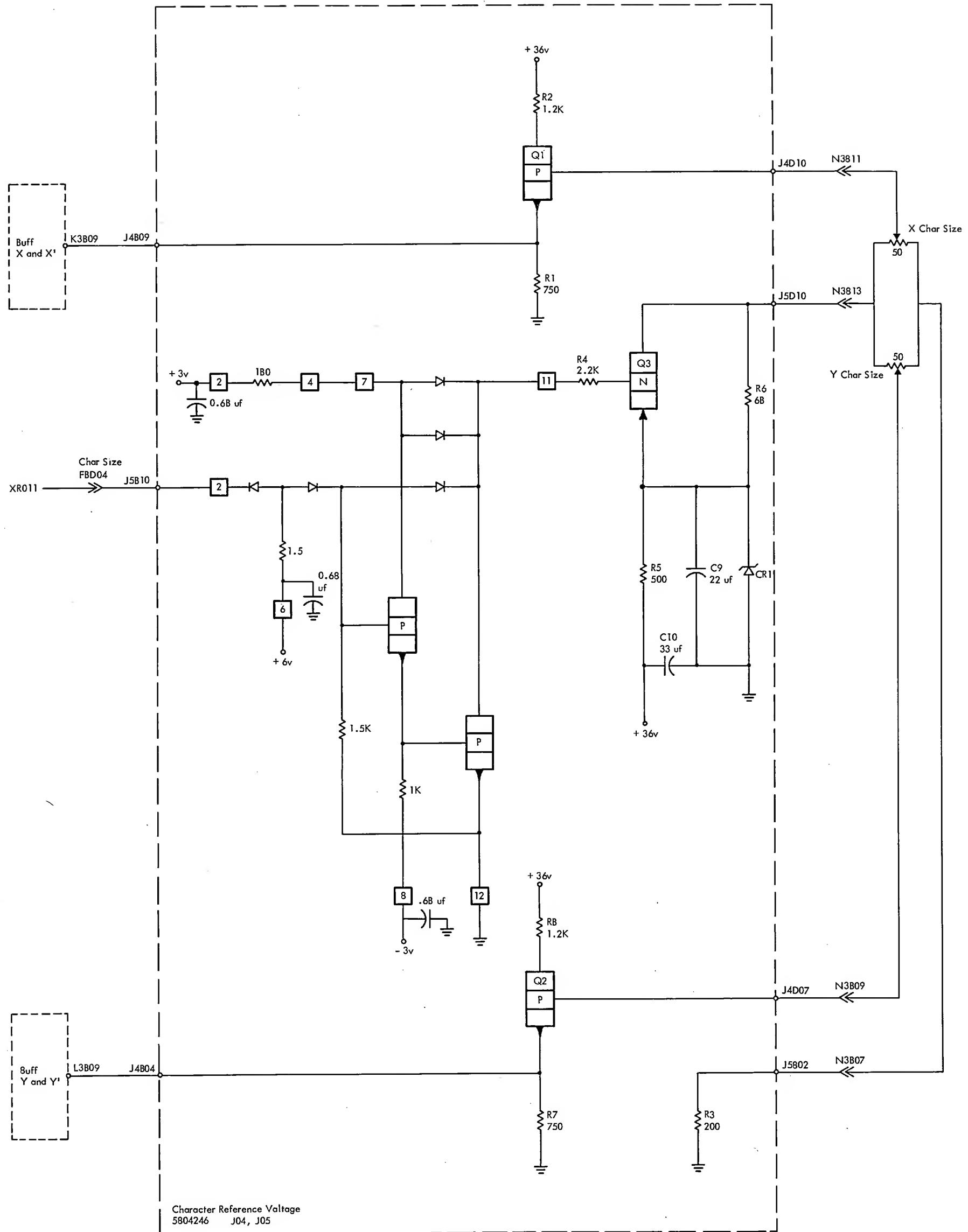


Figure 9017. Character Deflection, Reference Voltage Supply, Wiring Diagram

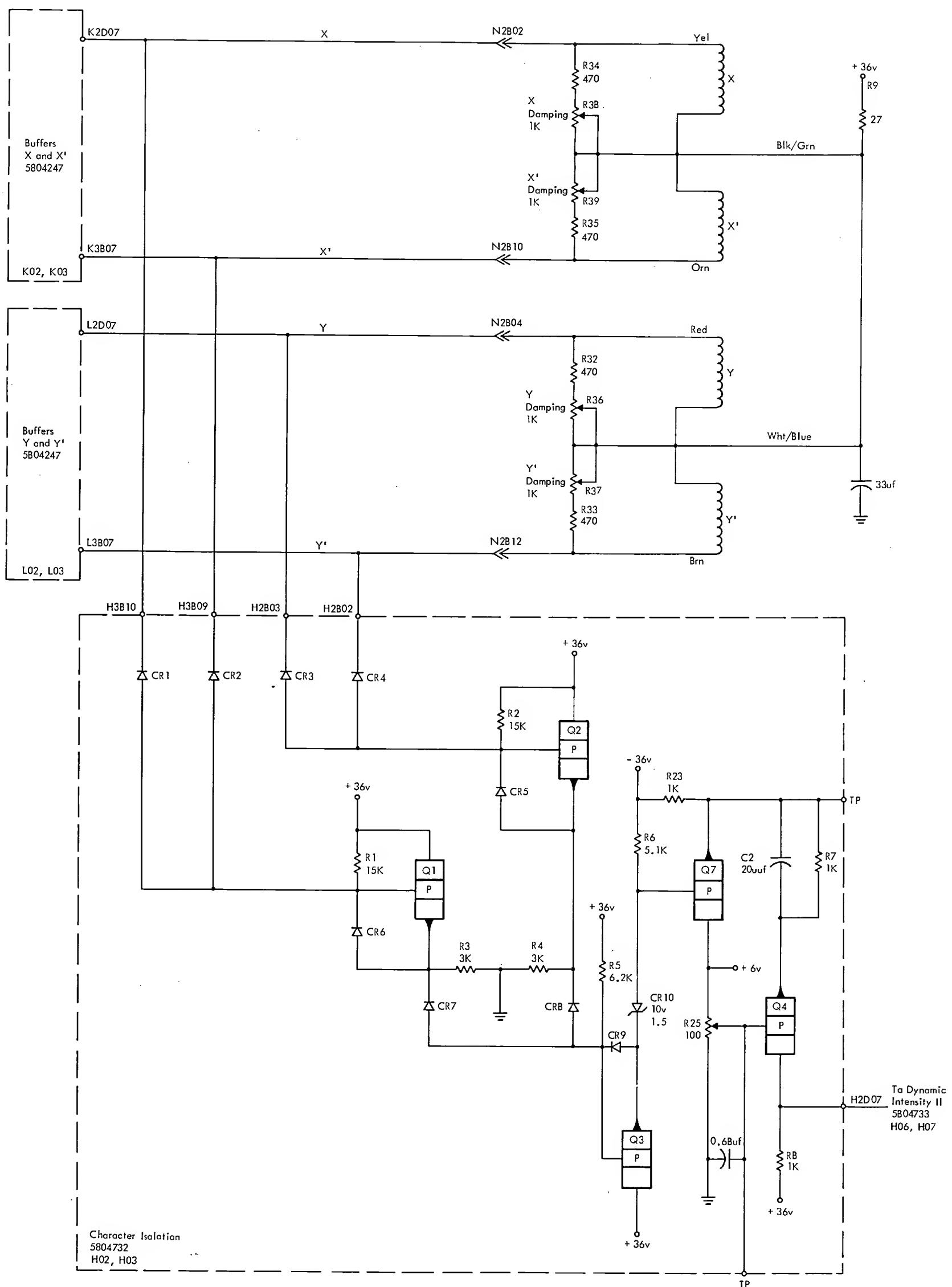
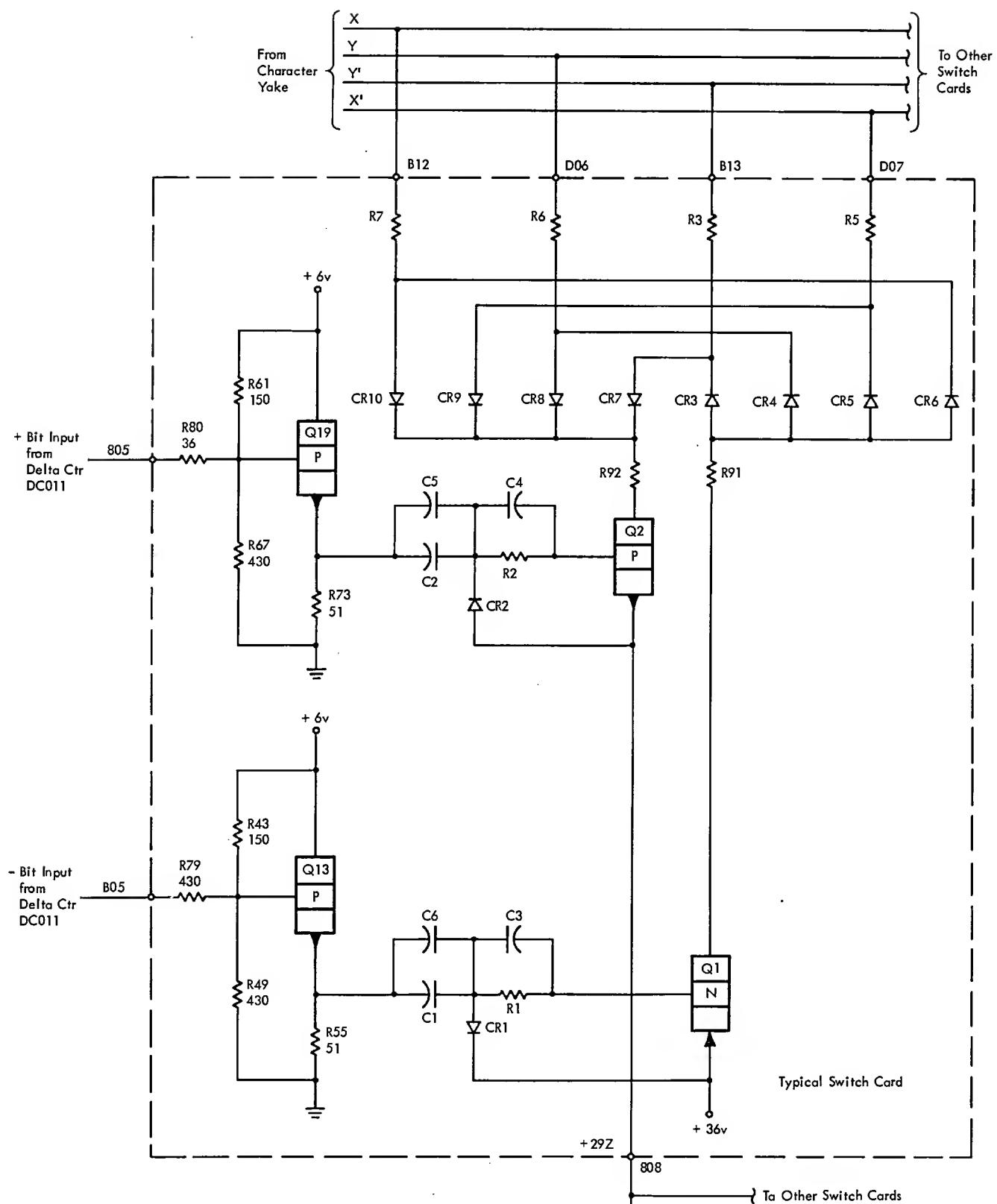


Figure 9018. Character Deflection, Yoke Control and Character Isolation Circuits, Wiring Diagram



Note:  
In table below, resistance is in ohms and  
capacitance in  $\mu\text{f}$  unless otherwise noted.

	A Bit Ø	B Bit Ø	8it 1	8it 2	Bit 3	Bit 4
R1	51	51	51	110	270	560
R2	51	51	51	120	270	620
R3	51	51	51	100	210	510
R5	105	105	105	210	422	845
R6	100	100	100	202	405	810
R7	95	95	95	191	3B3	76B
R91	4	4	4	9	20	40
R92	4	4	4	9	20	40
C1	0.001	0.001	0.001	0.1	0.47	0.1
C2	0.001	0.001	0.001	0.1	0.47	0.1
C3	0.01	0.01	0.01	0.0047	0.001	330 $\mu\text{f}$
C4	0.1	0.1	0.1	0.0047	0.001	330 $\mu\text{f}$
C5	10	10	10	2.2	—	—
C6	10	10	10	2.2	—	—

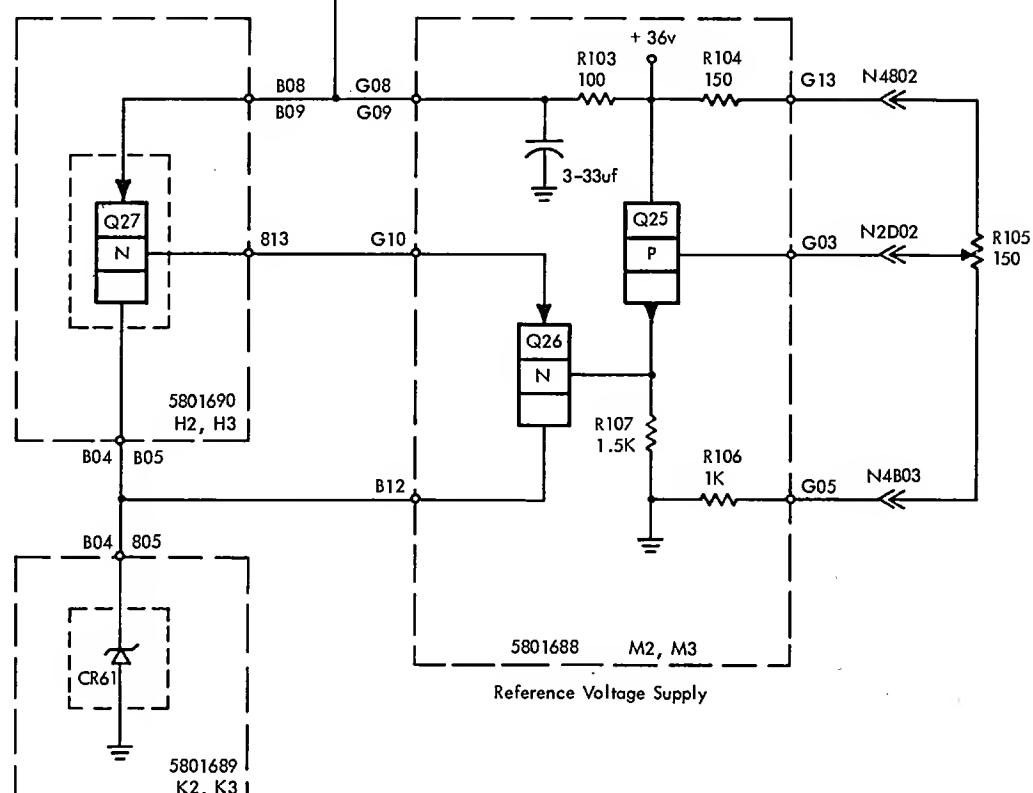


Figure 9019. Absolute Vector Graphics Deflection Control, Typical Switch and Reference Voltage Circuits

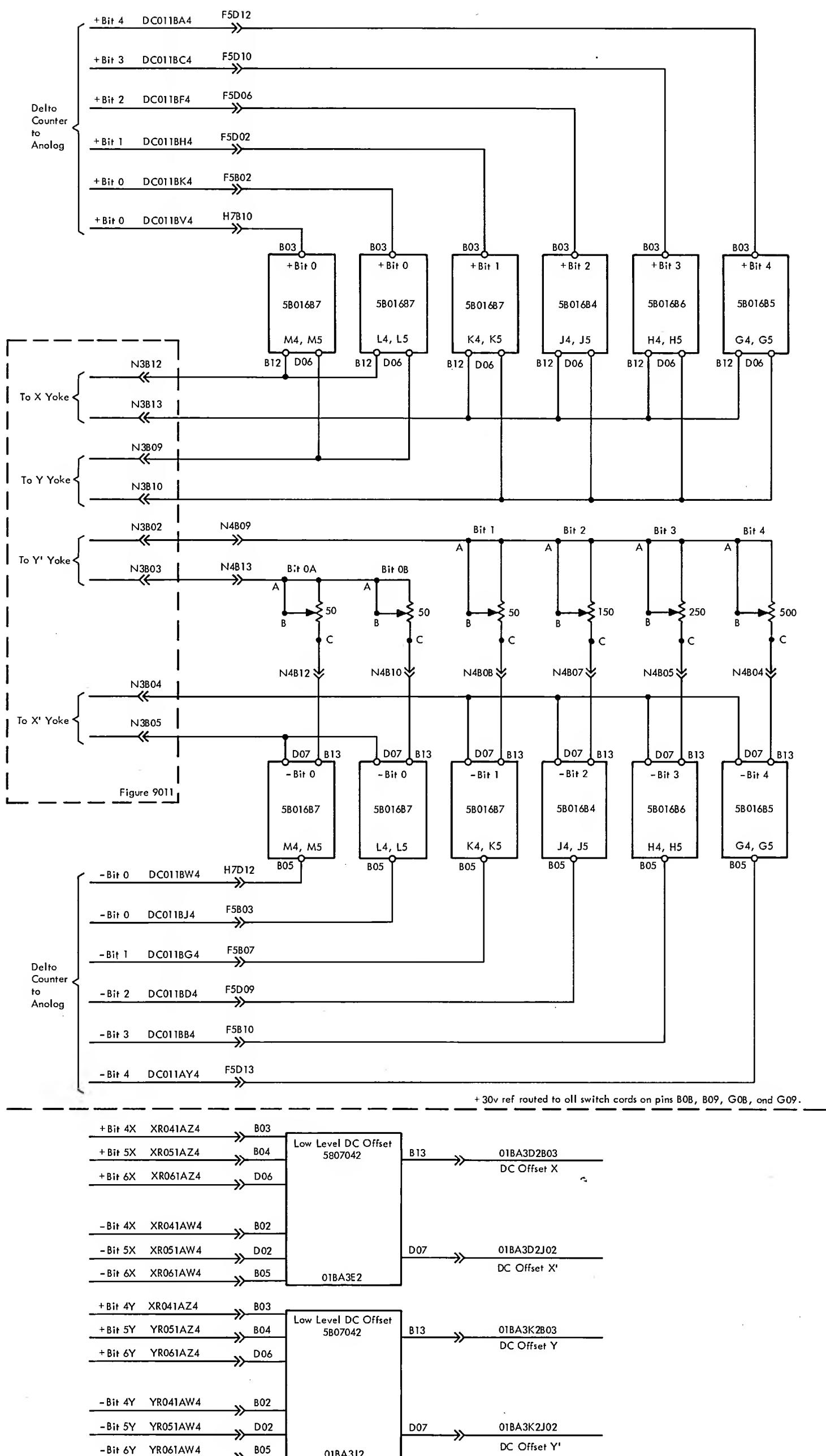


Figure 9020. Absolute Vector Graphics Deflection Control, Delta Counter Switching Circuits

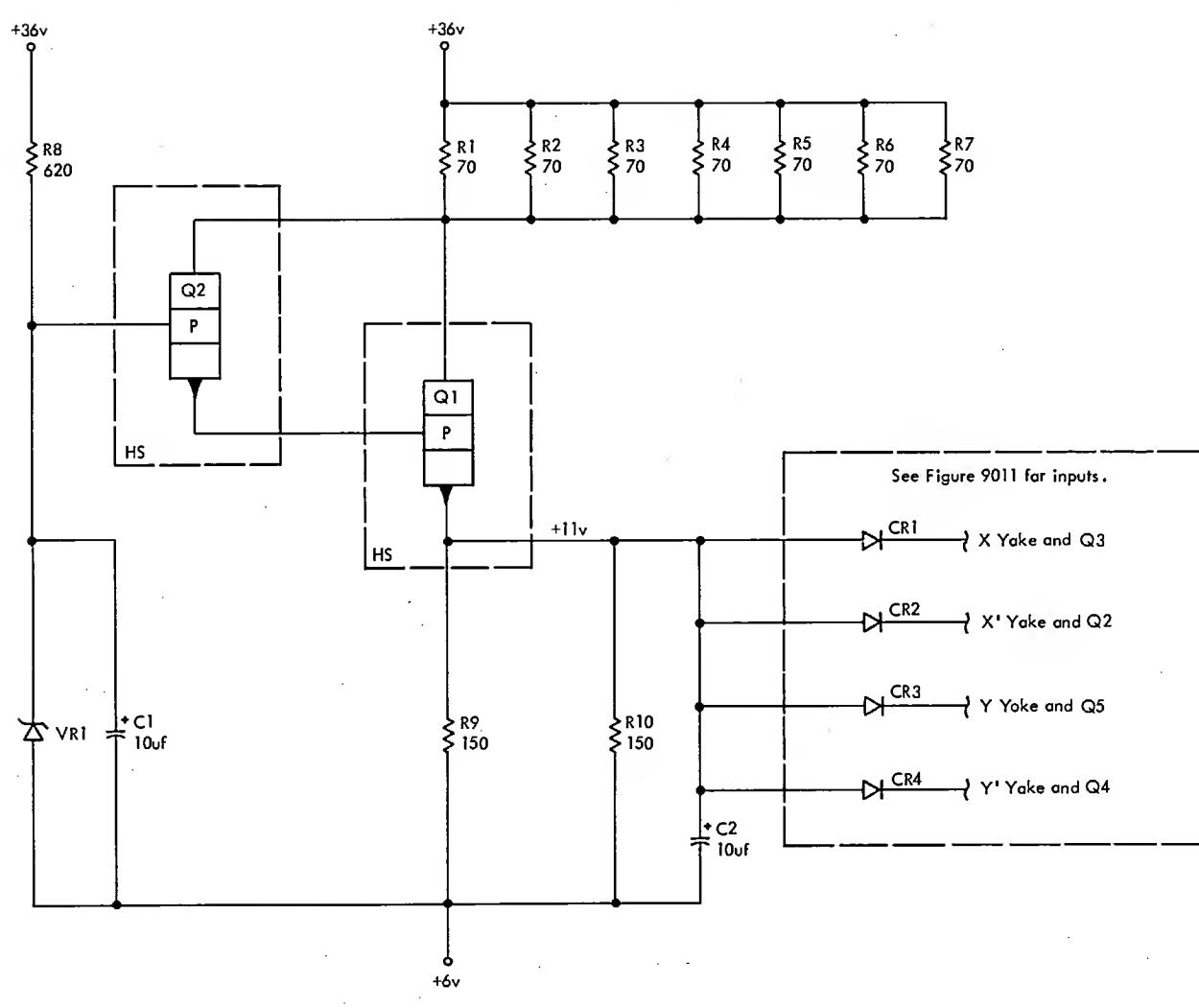
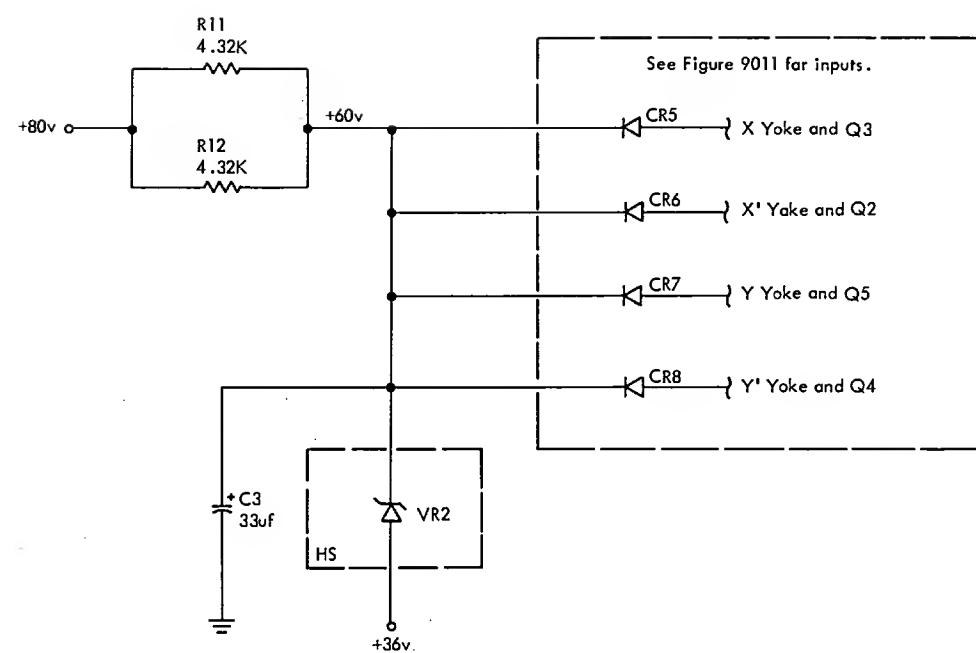


Figure 9021. Yoke Clamp Circuits

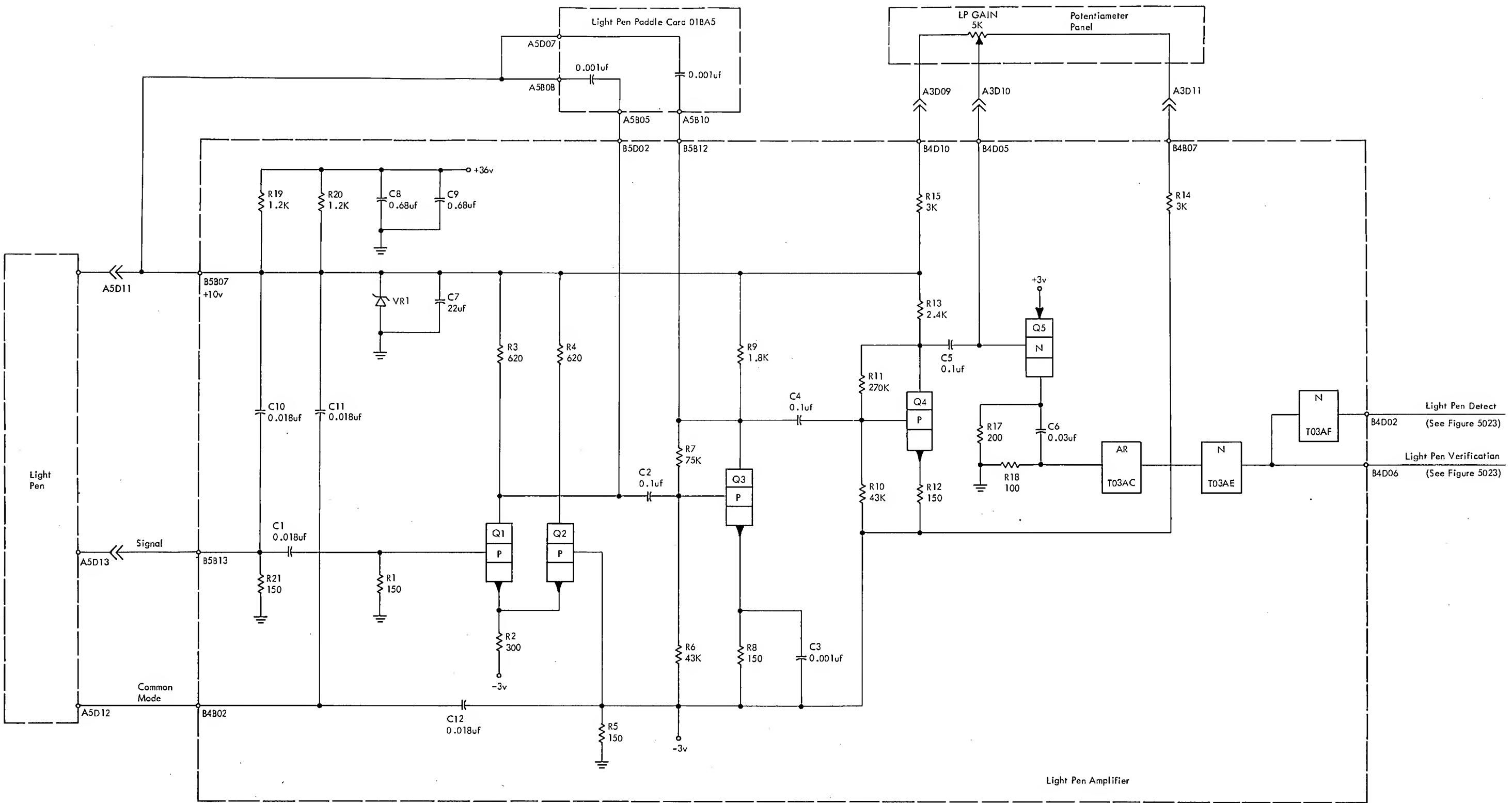


Figure 9022. Light Pen Amplifier Wiring Diagram

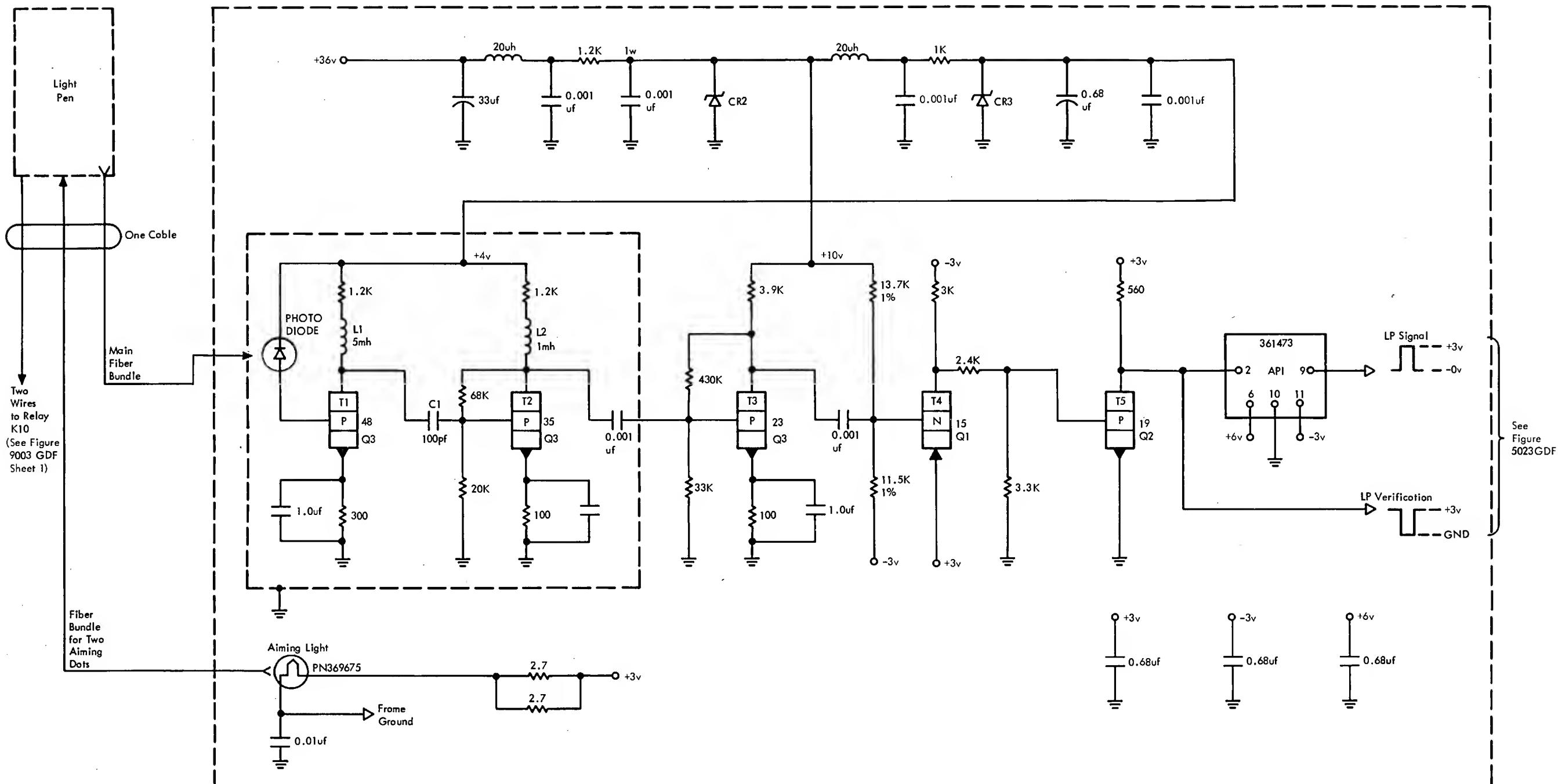
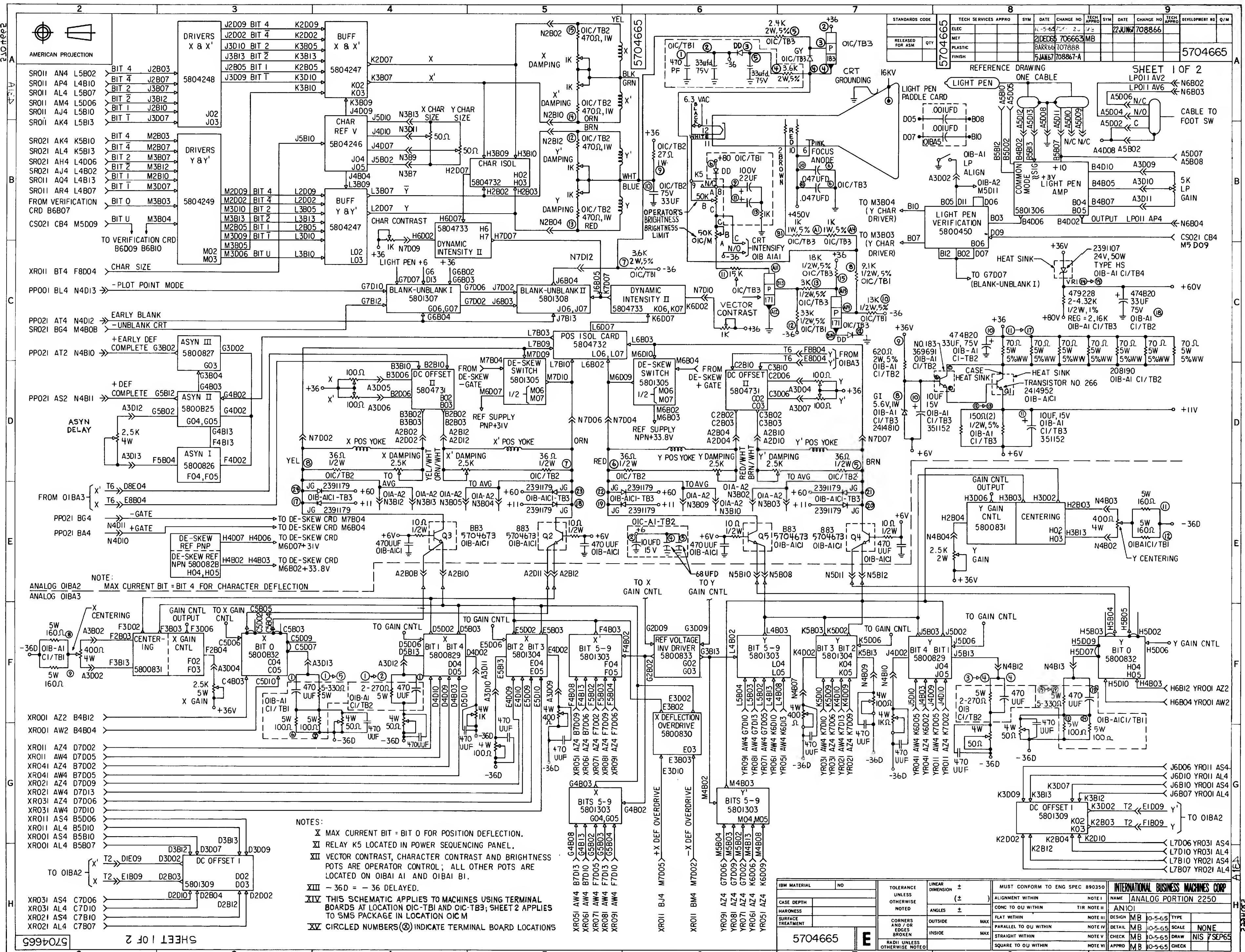


Figure 9022GDF. Light Pen Amplifier Wiring Diagram (for GDF Machines)



•Figure 9023. Display Unit Analog Control Block Diagram (Sheet 1 of 2)

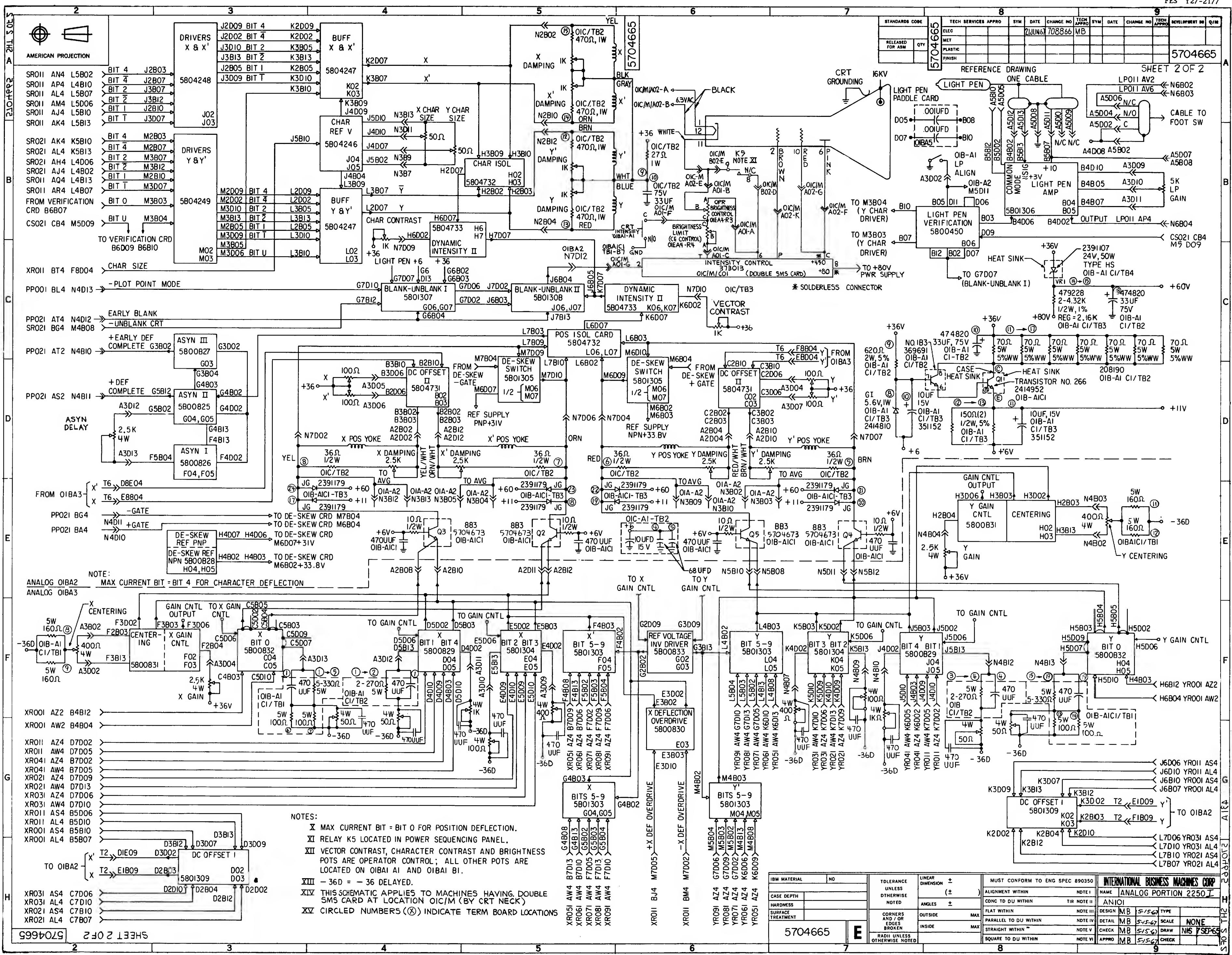


Figure 9023. Display Unit Analog Control Block Diagram (Sheet 2 of 2)

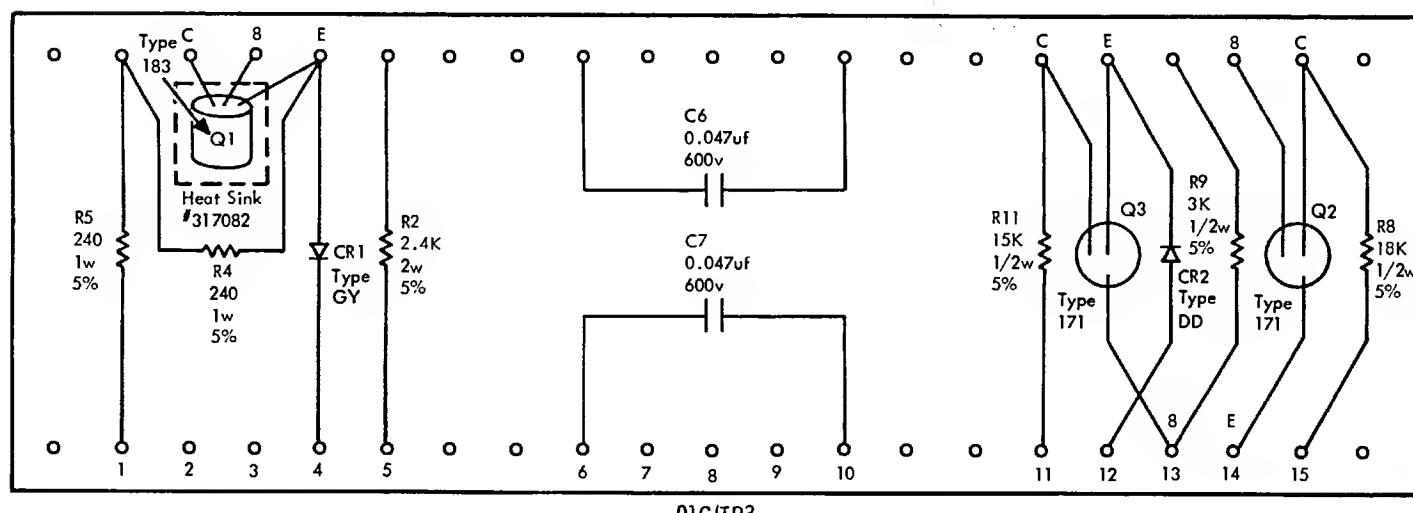
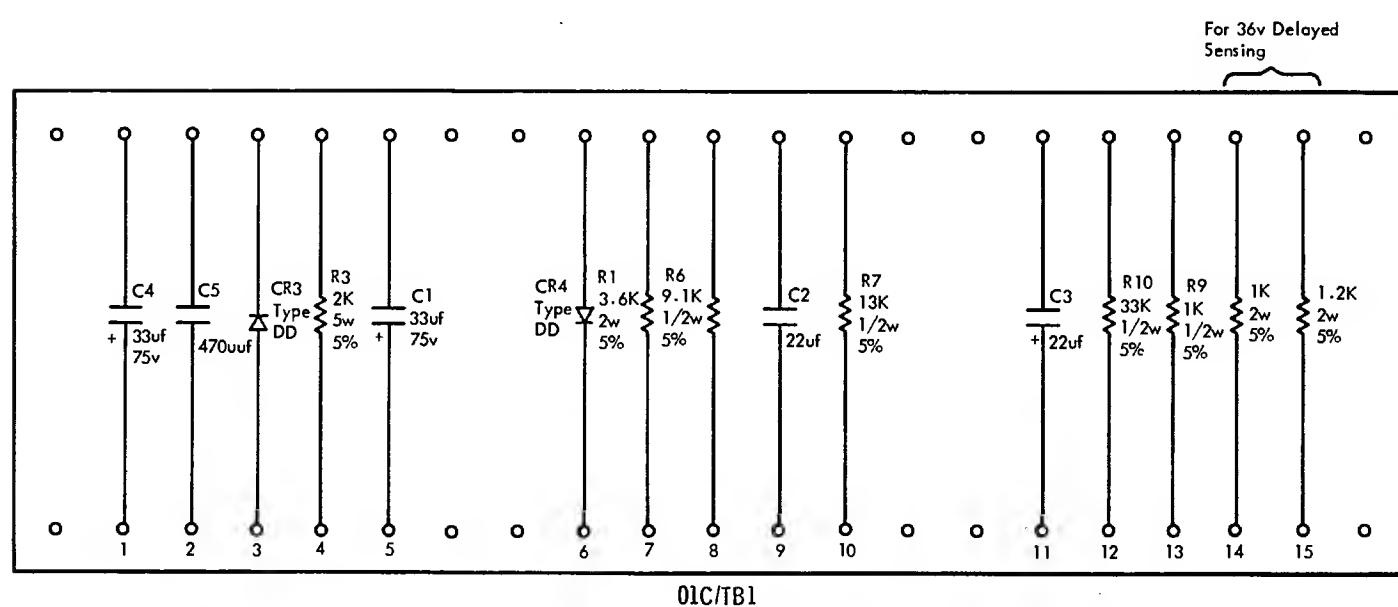
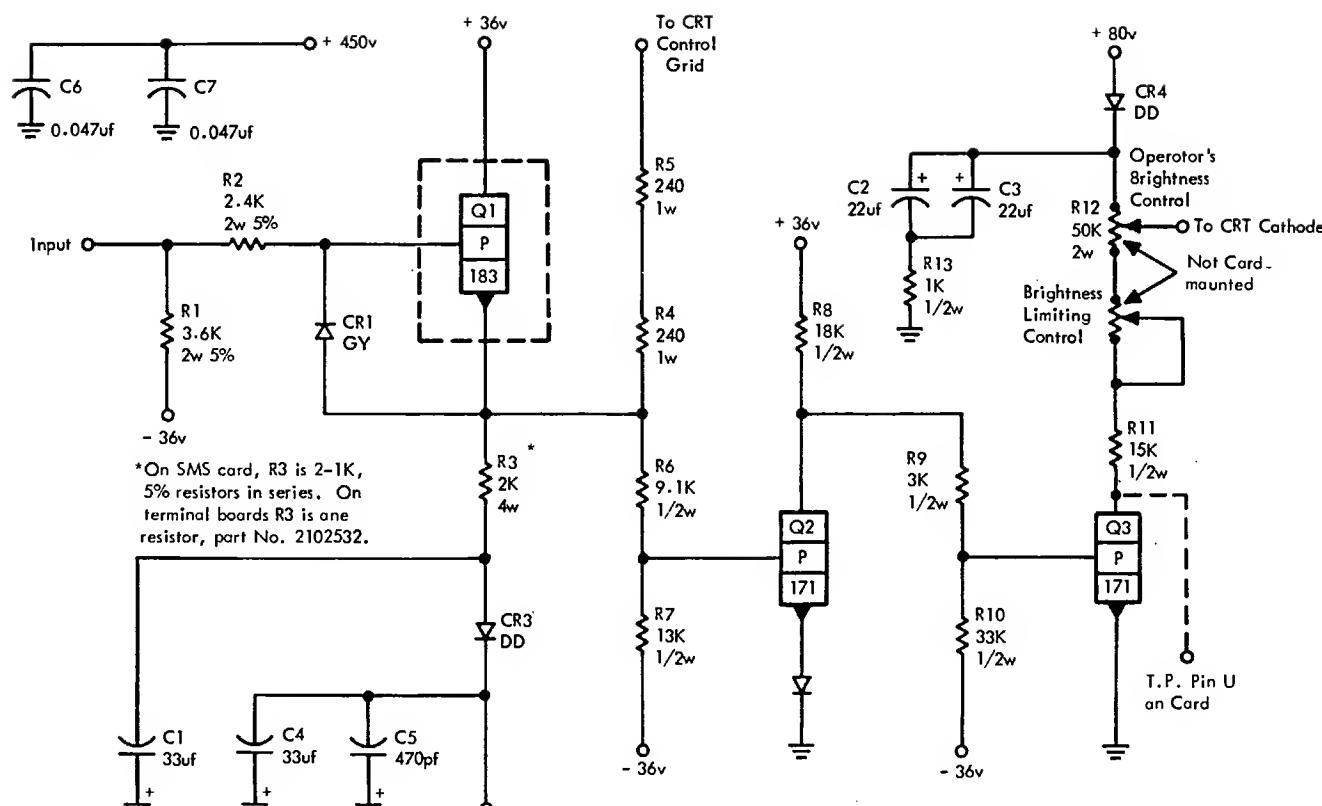


Figure 9024. Arc Protection Circuit and Component Location

- A register 5002  
 Absolute vector graphics:  
     Control, simplified logic 5024  
     Delta counter switching 9020  
     Diagnostic test flow chart 6041  
     Typical switching circuit 9019  
 Alphanumeric keyboard:  
     Code generation and transfer 5020  
     Data encoding diagram 5018  
     Data entry into storage 2009  
     Data entry operation 2004  
     Encoding chart 9002  
     Interrupt 5002  
     Sense and cursor data generation 5019  
 Analog wiring diagrams:  
     Absolute vector graphics 9019, 9020  
     Analog schematic 9023  
     Arc-protection 9024  
     Asynchronous delay 9013  
     Blank-unblank 9014, 9015  
     Character deflection 9016, 9017, 9018  
     DC offset control 9010  
     De-skew control 9012  
     Dynamic intensity 9014, 9015  
     High-order decoding 9008  
     Low-order decoding 9009  
     Position isolation 9013  
     Yoke clamp circuits 9021  
     Yoke control 9011  
 Arc-protection circuit 9024
- B register 5001  
 Block diagram of 2250-1 1000  
 Buffer address counter 5009  
 Buffer address register 5006  
 Buffer regeneration:  
     Buffer cycle 6014  
     Cursor adjustment process 6011  
     Display data operation 2008  
     MC search 6010  
     Proceed A and Proceed D 6009  
     Proceed B 6011  
     Proceed C and Proceed E 6013  
     Proceed C and Proceed F 6012  
     Proceed G 6010  
     SM search 6009  
     Timing sequence 6001  
     Transfer order process 6015  
 Byte counter 5007
- CE panel 9006  
 Character generator:  
     Block diagram 2018  
     Buffer regeneration, Proceed C and Proceed F 6012  
     Character sequence flow chart 6006, 6040  
     Character stroke control flow chart 6039  
     Character stroke timing chart 9007  
     Data and control diagram 2001  
     Diagnostic flow chart 6036  
     Size A characters display 9000  
     Size B characters display 9001  
     Stroke timing and control 5017  
     Typical operation 5000  
 Character sequence 6006  
 Character stroke timing chart 9007  
 Command validation 5010  
 Commands:  
     Insert Cursor 6020  
     Read Buffer 2012, 6024  
     Read Cursor 6025  
     Read Manual Inputs 6026  
     Read X-Y Position Registers 2014  
     Remove Cursor 6020  
     Sense 2013, 6028  
     Set Buffer Address and Start 2007  
     Set Buffer Address and Stop 2007
- Set Program Function Indicators 2003  
 Write Buffer 2006, 6023  
 Write Direct 2000, 6000, 6022
- Deflection Interlock wait 6007  
 De-skew diagnostic flow chart 6038  
 Diagnostic flow charts, analog:  
     Absolute vector graphics 6041  
     Character generator 6036  
     De-skew 6038  
     Intensity 6042  
     Large square 6033  
     Light pen 6037  
     Master 6031  
     Serious display defect 6032  
     Staircase 6034  
     Vector and point plot 6035
- Graphic design feature:  
 Buffer regeneration:  
     Graphic 6013GDF  
     Proceed C and Proceed E 6013GDF  
     MC search and Proceed G flow chart 6010GDF  
     Transfer and No Op modes 6013GDF  
     Transfer order process 6015GDF  
 Buffer regeneration timing sequence 6001GDF  
 Byte counter simplified logic 5007GDF  
 Deflection interlock wait flow chart 6007GDF  
 Light pen amplifier wiring diagram 9022GDF  
 Light pen detection process flow chart 6008GDF  
 Light pen test flow chart 6037GDF  
 Line/point sequence flow chart 6005GDF  
 Power Control and Distribution wiring diagram 9003GDF
- High-voltage power supply 9004  
 Intensity diagnostic flow chart 6042  
 Interface control:  
     Ending sequence 6018  
     Initial selection sequence 6016  
     Service cycle sequence 6017
- Large square diagnostic flow chart 6033  
 Light pen:  
     Amplifier wiring diagram 9022  
     Character detect, BAC control 2010  
     Detection 5023  
     Detection process flow chart 6008  
     Diagnostic flow chart 6037  
     Graphic detect, BAC control 2011  
     Test flow chart 6037  
 Line/point sequence 6005  
 Load counter 5008
- Master diagnostic flow chart 6031  
 MC search 6003, 6010  
 Mode sequence 6004
- Power control and distribution 9003  
 Power distribution, block diagram 9005  
 Power-off sequence 6030  
 Power-on sequence 6029  
 Program function keyboard:  
     Data encode and entry 5021  
     Data entry operation 2002  
     Indicator control operation 2003  
     Interrupt 5022  
     Set PF Keyboard Indicators command 6021
- Sense register 5004, 5005  
 Serious display defect diagnostic flow chart 6032  
 SM search 6002, 6009  
 Staircase diagnostic flow chart 6034  
 Status register 5003  
 Stroke timing and control 5017
- Timing periods 5011, 5012, 5013, 5014, 5015  
 Timing pulse generator 5016
- Vector and point plot diagnostic flow chart 6035



## FE Supplement

System/Unit	2250-1
Re: Form No.	Y27-2044-1
This Supplement No.	Y27-2177
Date	January 1968
Previous Supplement Nos.	None

This supplement revises and updates the IBM 2250 Display Unit Model 1, FE Diagram Manual, Form Y27-2044-1. The updated information includes changes to incorporate the Isolation Feature.

Incorporate this supplement in the original manual by substituting the attached pages for corresponding pages in the manual and by adding new pages provided.

Replace i and ii.

Replace 1000.

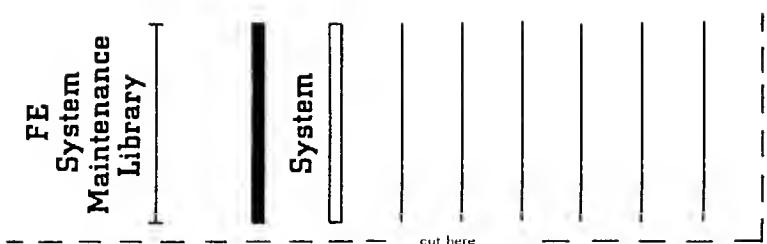
Replace 2000, 2001, 2005 through 2013, 2016 and 2017.

Replace 5000 and 5001.

Replace 6006, 6007, 6008GDF, 6009, 6011 through 6013, 6013GDF, 6014, 6015, 6022, and 6023.

Replace 9003 (3 Sheets), 9003GDF (3 Sheets), 9006, 9007, and 9023 (2 Sheets).

File this cover letter at the back of the publication. It will then serve as a record of the changes received and incorporated.



Y27-2044-1

IBM 2250 Display Unit Model 1

Printed in U.S.A.

Y27-2044-1

IBM<sup>®</sup>

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Field Engineering Division  
112 East Post Road, White Plains, N. Y. 10601